The Croonian Lectures

ON

RADIO-ACTIVITY AND CARCINOMA: AN EXPERIMENTAL INQUIRY.

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LECTURE I.

[AFTER thanking the College for the honour it had done him in inviting him to deliver the lectures, pointing out that the inquiry was still incomplete and that contributions to the entire research had been made by numerous workers in the Cancer Research Laboratories of the Middlesex Hospital, the lecturer proceeded as follows:—]

The leading idea throughout the whole research has been the undoubted fact that workers with x rays are liable to suffer from carcinoma of the hand. It is unnecessary to labour this point in view of the conclusive evidence furnished by my former assistant, Mr. C. W. Rowntree, in his Hunterian lecture before the Royal College of Surgeons of England on March 17th, 1909. From a careful examination of the microscopical sections shown by Mr. Rowntree I am convinced that he is right in describing the x ray condition which may follow on a somewhat severe and prolonged dermatitis occasioned by exposure to x rays as a squamous cell carcinoma. Into the question of the relationship of the x rays to the carcinoma, whether it is specific and direct or non-specific and, so to speak, accidental, I do not propose to enter here. It will be more convenient to deal with the whole subject at the conclusion of the lectures. For the moment it will suffice to allow that exposure to x rays and carcinoma of the hand are closely related in certain cases.

The next idea of importance in connexion with the research is that for many years certain physical agents have been considered by the profession to be causally related to cancer of special sites. Thus, clay pipes have been associated with cancer of the lip, paraffin and tar with cancer of the hands and arms of workers with these substances, soot with cancer of the scrotum in chimney-sweeps, gall-stones with cancer generally and particularly with cancer of the gall-bladder. In addition, betel-nut chewing[1] has been associated with cancer of the cheek, especially in Ceylon and the East where the habit is common; use of the kangri has been associated with "kangri cancer" in Kashmir; while bilharziosis in Egypt has been held accountable for cancer of the bladder. Similarly it has been noted that cancer occasionally develops on old scars, on the floors of chronic ulcers, and on the sites of lupus.

An approximation of these two ideas suggested the inquiry whether the clay pipes, the paraffin, tar, soot, &c., emit x rays or give other evidence of radio-active properties. If the answer to this question were in the positive, a single factor would be demonstrated to be present in a group of physical agents differing to the widest degree from one another, and the probability that each particular variety of cancer depended upon the physical agent usually inculpated would be strengthed, while presumption would be raised for the proposition that the common factor in all the physical agents—i.e., their radio-activity—is causally related to the common factor in the pathological conditions to which they all are supposed to give rise—i.e., the cancer.

It is remarkable that the cancer in all the cases that have been mentioned above, with the sole exception of that affecting the gall-bladder, is squamous cell carcinoma. Moreover, the histological diagnosis is almost invariably to be made with great ease, Malpighian cells, prickle cells, and epithelial pearls being conspicuous. For this reason the present research has been confined to the group of carcinomata, meaning thereby squamous cell, columnar cell, and spheroidal cell carcinomata as determined by microscopical examination. The research therefore resolved itself into a determination whether clay pipes, &c., and carcinomatous material give evidence of radio-activity.

The two chief criteria of radio-activity relied on by the physicist are (1) the action of the substance in question upon a charged electroscope; and (2) its action upon a photographic plate in the dark. Of these criteria action upon a photographic plate in the dark is well known to the medical profession in the production of skiagraphs, but it is upon the electrical properties that the physicist places more reliance.

Owing to the fact that the x ray tube only emits γ radiations while such radio-active substances as radium, uranium, and thorium emit α particles, β rays, and γ rays, while they also are far more complex than their chemical names would suggest, it became necessary to consider these substances as well as the x rays. It is clear that a substance may belong to the radio-active group and yet fail to produce γ radiations. Thus "chemically pure" uranium oxide emits α particles and β and γ rays, but the physicist can separate a uranium oxide from this which is indistinguishable in its chemical reactions but differs electrically in emitting α particles alone. Such uranium is without effect upon a photographic plate though it affects a charged electroscope.

In addition to their power of affecting a photographic plate in the dark radio-active substances emitting γ rays with their high velocity and penetrating power or β rays with their somewhat lower but still great velocity and penetrating power, have the property of affecting the photographic plate though separated from the film by such substances as aluminium, mica, &c. This property forms an important means of differentiating the action of a recognised radio-active substance, such as radium or thorium, from other substances which apparently fail to possess the power of acting through a screen. How far this differentiation between radio-active and non-radio-active substances may be carried by this method will be discussed later.

Electrically, the recognised radio-active substances have the property of accelerating the discharge of an electroscope whatever the sign of the electricity with which its leaves are charged. This property depends upon the fact that the radio-active substance by the α particles (helium atoms charged +), β rays (negative electrons), and γ rays which it emits, ionises the air in the electroscope, breaking the molecules up into their constituent atoms, each of which is electrically charged + or −. These charged atoms collide with the charged gold leaves, and such as are of opposite sign to the charge on the leaves neutralise a corresponding amount of electricity on the leaves. The greater the ionisation of the air in a given time the more rapidly the charged leaves fall together and the greater the radio-activity of the substance under investigation is said to be.

From what has been said it follows that the various substances dealt with in the present investigation call for consideration (1) as regards their action when exposed to a photographic plate in the dark, and (2) as regards their influence upon the rate of leak of an electroscope (*a*) charged + and (*b*) charged −. In addition it is necessary to determine the same points in regard to non-carcinomatous substances, and further, to determine the influence of radio-activity upon the division of cells by direct experiment. In the present lecture I propose to show that certain animal tissues and other substances have the power of acting upon a photographic plate in the dark; in the second lecture I shall consider, so far as possible, the properties and nature of the substances in the tissues which possess this power; the third lecture will be devoted to a consideration of the electrical properties of the carcinomatous and non-carcinomatous substances; while the fourth lecture will deal with the influence of radio-activity upon cell division and will include a short general survey of the bearings of the experiments.

THE SKOTOGRAPHIC ACTION OF CERTAIN ANIMAL TISSUES AND OTHER SUBSTANCES.[2]

If a sample of human liver be minced, dried in the hot air

[1] I am informed that the substance used is areca nut powdered and mixed with slaked lime and wrapped in a betel leaf.

[2] I have ventured to extend the use of the word "skotograph" to signify the effect that is produced upon a photographic plate by certain substances in the dark (σκότος, darkness) on the analogy of "photograph," "radiograph," and "skiagraph." The effects to which attention is about to be directed are certainly not *photographs* in the ordinary sense of the word, neither are they *skiagraphs*, while to term them *radiographs* would be to assume the point at issue.

oven at 100–110° C., reduced to a powder, and some of this powder be placed on a photographic film in the dark, and the plate and powder be kept in contact in complete darkness for a certain length of time, it will probably be found, on developing the plate, that the former situation of the powder is indicated by a more or less considerable punctate deposition of silver. Prior to development the photographic plate shows no alteration. Similarly if a "pure" cholesterin gall-stone be exposed to a photographic plate in the dark, subsequent development of the plate will probably show an intense deposition of silver which occupies a larger area than corresponds to the area of the calculus in contact with the plate (Figs. 1 and 2). Skotographic action is not manifested by all animal substances; for example, it is rarely produced by spleen or lung dried and powdered as above, while numerous experiments made with uric acid calculi, paraffin wax, and clay pipes have shown that these substances possess no skotographic power. Similarly, certain varieties of micro-organism possess marked skotographic power, while others appear to be totally deficient. It is unnecessary here to enter into the details of the method for obtaining skotographs or the precautions to be taken in order to eliminate the action of light or of any outside influence of a recognised radio-active nature. These are all given elsewhere.[3] It must be stated, however, that the values assigned to the various plates showing skotographic action were determined by comparing them with the effect produced in a photographic plate by allowing x rays to act upon it through a Benoist's gauge. Since the gauge consists of aluminium graduated in thickness from 1 millimetre to 12 millimetres a graduated deposition of silver takes place on the plate. It was possible to graduate the degrees of silver deposition by this means from 0 to 6, and since the same skiagraph was used throughout, the values given for the various substances and tissues are comparable among themselves.

Tissues from non-malignant cases.—In all, tissues from 115 bodies of persons dying from some cause other than malignant disease were examined skotographically. In most instances the examination included samples of liver, kidney, spleen, and lung. The patients were of both sexes and of all ages. They were grouped for purposes of comparison into the following age-periods: "under 2 years" of age, 2–20 years, 21–35 years, 36–45 years, 46–55 years, and "over 55 years" of age. This grouping of age-periods was made in order to institute a comparison with similar tissues derived from cases of carcinoma. In addition to the above, specimens of brain, pancreas, breast, liver of sheep and of ox, tissues of mouse, guinea-pig, and rabbit were examined skotographically, but no reference to the results will be made here.

The results of the investigation are summarised in the following table:—

Table showing Mean Skotographic Values of Liver, Kidney, Spleen, and Lung in 115 Non-malignant Cases.

Males.				Females.			
Age under 2 years (10 male, 10 female cases).							
Liver.	Kidney.	Spleen.	Lung.	Liver.	Kidney.	Spleen.	Lung.
1·7	2·3	0·8	0·9	3·1	1·6	0·9	1·1
Age 2–20 years (9 male, 6 female cases).							
2·1	2·4	0·6	0·4	3·2	2·8	0·4	0·6
Age 21–35 years (12 male, 10 female cases).							
3·0	2·6	1·1	0·75	3·7	2·3	0·5	0·6
Age 36–45 years (9 male, 10 female cases).							
2·7	1·6	0·3	0·0	3·4	3·9	0·9	0·5
Age 46–55 years (10 male, 10 female cases).							
3·3	1·4	0·5	0·0	4·2	2·7	0·8	0·8
Age over 55 years (11 male, 8 female cases).							
3·9	2·0	0·5	0·9	2·6	2·5	1·1	0·25
Means at all ages (61 male, 54 female cases).							
2·8	**2·1**	**0·6**	**0·6**	**3·4**	**2·8**	**0·8**	**0·6**

From this table it appears that liver and kidney possess a far higher skotographic power than spleen or lung, and that the female tissue in each case has a greater skotographic power than the corresponding male tissue. Owing to the large size of the liver and to the fact that it exerts the largest amount of skotographic effect, the figures may be examined more closely. It is seen that the skotographic power of the liver in males increases steadily throughout life, with the exception of a fall at the age-period 36–45 years. In females this rise in skotographic power of the liver, including the fall at the age-period 36–45, is also seen. But whereas the values for the male reach their highest in the age-period "over 55 years" this same age-period in females witnesses a remarkable fall in skotographic power of the liver. Further reference to this point will be made in the last lecture. The small mean values obtained for the spleen and lungs are due to the fact that occasionally these organs exert a definite effect. Two-thirds of the total number of spleens examined skotographically, and two-thirds of the total number of lungs, were absolutely without skotographic power. On the other hand, only one-fifth of the total number of livers examined skotographically were without effect.

Carcinomatous material.—The skotographic value of the primary mass has been determined in 17 cases of carcinoma; of secondary growths, 29 specimens from 24 cases have been examined. Eleven of the cases were male, 30 were female. Two primary and four secondary growths were without skotographic effect or the effect was doubtful. The mean skotographic value of the male primary masses was 2·0, male secondary masses, 2·5; that of the female primary masses was 3·6; female secondary masses, 3·2. Hence the superiority of the skotographic value of female tissue over that of male tissue obtains also in the case of carcinoma. (Cf. Figs. 3 and 4.)

Tissues from cases of carcinoma.—The skotographic values of the liver, lung, kidney, and spleen have been determined in 72 cases of carcinoma, 41 of which showed important metastases, and 31 insignificant metastases or none at all. The cardinal facts that liver and kidney exert a greater skotographic power than lung and spleen, and that the skotographic power of a female tissue is greater than that of the corresponding male tissue are shown in this class of case as in that in which there is no malignant disease. But it appears that the carcinomatous condition is not without effect upon the skotographic power of the various tissues. This is best seen by considering the case of the liver.

The effect of carcinoma upon the skotographic power of the liver may be considered in two ways. 1. Livers themselves free from metastasis may be compared skotographically according as they are derived from cases in which the total mass of carcinomatous material in the body is great or is small. 2. A comparison may be made between the hepatic tissue of non-malignant cases and the hepatic tissue of carcinomatous cases in which the liver is the seat of numerous large metastases. These two different methods of approaching the question agree in indicating that carcinoma augments the skotographic power of the liver in males and decreases it in females. In the following table are given the figures upon which this statement is founded:—

Table to show the Influence of Carcinoma on the Skotographic Power of the Liver.

Age.	Males.				Females.			
	Non-malignant cases.	Growth present in liver.	Much growth in body.	Little growth in body.	Non-malignant cases.	Growth present in liver.	Much growth in body.	Little growth in body.
Under 35	3·0	—	—	—	3·7	2·0	1·7	4·0
36–45	2·7	3·5	2·75	—	3·4	3·5	3·7	4·25
46–55	3·3	3·5	3·5	1·8	4·2	—	3·7	4·0
Over 55	4·0	4·5	4·5	3·8	2·6	2·5	2·5	2·6

But consideration of the above table shows that the matter is not so simple. For although male hepatic substance in the neighbourhood of liver metastases is more skotographic than non-malignant liver, while the converse is true in the case of the female, and although male hepatic substance where there is much growth in the body is more skotographic than when there is little, while the converse is true in the case of the

[3] Lazarus-Barlow: On the Effect Produced by Certain Animal Tissues on a Photographic Plate in the Dark, Archives of the Middlesex Hospital, vol. xiii., 1908 (Seventh Cancer Report), p. 111. Colwell: The Effects of Urinary and Biliary Calculi upon Photographic Plates in the Dark, ibid., p. 98, and Proceedings of the Royal Society of Medicine, vol. i., 1908, Pathological Section, p. 127.

female, a small amount of carcinoma in the body appears to diminish the skotographic power of the male liver, while it augments that of the female liver. I do not attempt an explanation of these points; indeed, they need confirmation on a much larger number of cases. The regularity with which female liver and male liver act in opposite directions in the face of what is apparently a single condition—i.e., carcinoma, is, however, such that it suggests the existence of some sort of interaction between carcinoma and the skotographic property of the liver. On the other hand, we may be quite wrong in considering carcinoma as a single condition relative to the two sexes; it has already been shown that male and female carcinomatous materials differ in skotographic power.

The only condition in which a thoroughly satisfactory determination can be made of the influence of carcinomatous growth upon the skotographic power of the tissue in which it lies is that in which one of paired organs is the seat of metastasis. This is relatively so uncommon, and when it occurs the chance that the metastasis will be sufficiently large to influence the neighbouring tissue of the organ to any extent is so small, that I have only obtained a single example. The case was one of carcinoma of the cervix, and one kidney was the seat of a fairly large number of metastases while the other was free. The renal substance of the unaffected kidney had a skotographic power of 3, while the renal substance of the affected kidney was absolutely without effect upon the photographic plate. This case therefore conformed to the statement made above for the liver, that in the female carcinoma leads to a diminution of the skotographic power of the tissue in which it lies.

Substances commonly supposed to be causally related to carcinoma.—Numerous samples of clay pipes, soot, pitch, paraffin wax, metallic arsenic, arsenious oxide, areca nut, cholesterin gall-stones, pigment gall-stones, renal and vesical calculi have been examined skotographically, the calculi, renal, biliary, and vesical, being made the subject of an extended research by Dr. Colwell.[4] Skotographic effect was exhibited by one sample of soot out of two examined, by areca nut on all of numerous occasions, by each of 23 specimens of cholesterin gall-stone more or less "pure," in three out of four samples of pigment gall-stones examined, the effect being always very slight as compared with the action of the cholesterin calculi, and by 30 out of 38 vesical calculi. Metallic arsenic and arsenious oxide produced effects upon the photographic plates, but inasmuch as the films showed alteration before development the action cannot be regarded as skotographic. On the other hand, none of nine specimens of clay pipe, of numerous samples of paraffin wax, of four samples of pitch from different localities, of several specimens of coal yielded the slightest trace of skotographic action.

In the case of cholesterin gall-stones the action on the plate extends widely beyond the area of the surface of the calculus in contact with the plate, but in the case of all the other substances the area of silver deposition was co-extensive with the area of contact between substance and film. This is well seen in the skotographs of vesical calculi in which rings of silver deposition alternate with rings of no deposition in such a way that a picture is formed of the surface of the calculus by which the skotograph was produced. (Fig. 5.) When the nucleus of a calculus, or certain laminæ, or the entire calculus consists of "pure uric acid" the corresponding part of the film shows a complete absence of skotographic effect. As a rule, calculi or laminæ in calculi, consisting of urate of ammonium, oxalate of calcium, phosphate of calcium, or ammonio-magnesium phosphate, possessed skotographic power, but since instances to the contrary were found Dr. Colwell concluded that the chemical substances in question, *as such*, were not the effective agent. Similarly, he found that purified cholesterin obtained from a gall-stone which produced a profound effect upon a photographic plate was itself entirely devoid of skotographic power.

Skotographs of areca nut are of especial interest in connexion with the observation made by Dr. Russell, F.R.S.,[5] that almost all varieties of wood affect a photographic plate when placed in contact with it under conditions of total darkness—i.e., possess skotographic powers. This power is possessed by the winter and spring woods in different degrees, so that a skotograph of a piece of wood reproduces a picture of the grain of the wood in the same way as a skotograph of a vesical calculus reproduces the appearance of the cut surface of the calculus. Similarly a skotograph of a bisected areca nut shows the peculiar markings of the nut in all their detail. (Fig. 6.)

[4] Loc. cit.

[5] Philosophical Transactions of the Royal Society, Series B., vol. cxcvii., 1904, p. 291, especially; other papers in same Transactions both before and after.

LECTURE II.

THE NATURE OF SKOTOGRAPHIC ACTION.

Russell's researches upon the effect of various woods upon a photographic plate in the dark led him to the conclusion that the deposition of silver is occasioned by traces of hydrogen peroxide, formed owing to oxidation of the terpenes and other resinous substances in the wood in the presence of moisture. This strictly chemical action, albeit produced by traces of hydrogen peroxide so minute as to be beyond detection by any other method, is distinguishable from the action brought about by ethereal vibrations, such as those of β or γ rays, by the fact that it is completely inhibited by interposing a thin screen of mica between the wood and the film. Russell showed further that wood which had been exposed to strong sunlight before placing in contact with the photographic film produces a far stronger effect than wood which has been kept in the dark. Under these circumstances it became necessary to determine as far as possible with what constituent or constituents of the animal tissues their skotographic power was bound up, and subsequently whether that power conformed more to the type of a chemical substance, and particularly to hydrogen peroxide, or more to that exerted by ethereal vibrations. It must be stated at the outset that a complete answer cannot be given to the above questions. It can rather be said what the skotographic power is *not* bound up with than what it *is*. Similarly it will be found that it is impossible to include it definitely in the chemical or the physical group of phenomena, since in certain respects it appears to resemble hydrogen peroxide, and in others to resemble an ethereal vibration.

Attempts at isolation of the skotographic substance.—The skotographic substance, or substances, for there is reason to believe that in the liver at least two substances exist which differ from one another in certain reactions, but agree in affecting a photographic plate in the dark, is not protein, or fat, or carbohydrate, or colouring matter, or mineral salts. Each of these constituents of the tissues has been definitely excluded. It is unnecessary to enter into a detailed account of the method in which this has been done, for it has been recorded elsewhere.[6] The following short account will suffice. That it is not *protein* is indicated by the fact that it is yielded by liver, for example, and not by spleen; while the same fact shows that it is not dependent upon the "cellularity" of the tissue as such. But the non-protein character can be shown by obtaining a completely protein-free extract of the tissue and proving that this extract still possesses skotographic power. Fig. 7 shows that this is the case. It was produced in the following way. Liver of sheep was minced and allowed to stand under distilled water for 18 hours. The watery extract was then acidified, boiled, and filtered. To the filtrate three times the volume of basic lead acetate in solution and suspension was added and the resulting precipitate was filtered off. Then sulphuretted hydrogen was passed through the filtrate to precipitate the lead, and after the filtrate from this operation had been concentrated to small bulk upon a water bath it was added to twenty times its volume of absolute alcohol and allowed to stand for three weeks. The merest trace of precipitate was formed and was filtered off and the alcohol was removed by evaporation. The residual fluid was then used to write certain words on a plain glass plate with a camel-hair pencil, and this plate was exposed to the photographic film under skotographic conditions and separated from contact with the film by strands of cotton. It is seen that this watery extract of liver in which none of the laboratory tests for protein shows the slightest trace of the material possesses intense skotographic power. The process for purification from protein has been checked at every stage as well as the reagents used, and it is certain (1) that the skotographic power is not introduced during the process; and (2) that the various precipitates formed are

[6] Lazarus-Barlow: Archives of the Middlesex Hospital, 1908, vol. xiii., p. 130.

devoid of skotographic power except in so far as they are contaminated with the corresponding filtrate.

That the skotographic substance is not *fat* as such is shown by the fact that a material which has been rigidly extracted with ether still possesses skotographic power. Thus all the powdered tissues that were used to arrive at the conclusions given in the first lecture were extracted with pure ether in a Soxhlet apparatus for a minimum of six hours before being examined skotographically. This method extracts the phosphorised as well as the non-phosphorised fats. Just as the watery extract of a liver, for example, possesses skotographic powers, so it is possessed by an ethereal extract. Into the question of the actual constituent of the ethereal extract which possesses the power it is impossible for me to enter. The chemical analysis I have not attempted owing to its difficulty. That the skotographic substance is not *carbohydrate* as such is proved by the facts that some of the extracts by which it is manifested contain carbohydrate while others are devoid of it, that it is manifested by ethereal extracts, and, as will be shown later, that it survives charring. The fact that the skotographic power is independent of the water-soluble and the ether-soluble *pigments* of the tissue is shown by the persistence of effect if one of these extracts be decolourised by finely divided animal charcoal. And finally, that it is independent of the *mineral constituents* of the tissue, at least those which survive a temperature of 300° C. (see below), is shown by the fact that the ash of a tissue which possesses marked skotographic power is entirely without effect upon a photographic plate in the dark.

The skotographic power of any tissue is completely removed if it be first extracted with water and subsequently with ether. This appears from the accompanying figure in which the upper fourth shows the effect of the original substance; the second fourth shows the effect of a watery extract; the third, that of an ethereal extract made subsequently to the watery; the bottom fourth, over which there is an absence of skotographic action, was exposed to the solid residue after the watery and ethereal extractions (Fig. 8). A similar absence of skotographic power characterises a tissue which has been extracted with acetone as might be expected since it dehydrates and also extracts fat. Just as the skotographic power is contained in the watery and ethereal extracts, so it is contained in one made by acetone, and by evaporating with care the constituents of the original skotographic material which are soluble in water and those which are soluble only in strong acetone may be divided. They are apparently the same as those which are contained in the watery and ethereal extracts when these are made separately.

But though it is clear that the skotographic power is not a property of protein as such, there is no doubt that it is a property of certain organic substances, as distinguished from inorganic, that are probably derived from protein. As will be shown later, the skotographic power is not destroyed, even though the substance manifesting it be heated to a temperature of 300° C. Such a temperature chars the substance and no doubt breaks up much of the protein, but from it a material, often of polymorphic crystalline character but highly deliquescent, can be separated which exerts a skotographic effect and which is still organic in nature, as shown by the fact that it chars on further heating. By repeated solution in water and precipitation with absolute alcohol, this crystalline material can be divided into a honey-like non-crystallisable and a colourless crystallisable portion. The skotographic power resides chiefly, if not entirely, in the honey-like, highly deliquescent material. This material is dialysable with ease and carries with it the actual skotographic substance. Further than this analysis has not gone.

Conditions determining the manifestation of skotographic power by substances possessing it.—It has been shown above that I have not succeeded in isolating the skotographic substance, though it has been stripped of certain materials with which it is usually associated. It has therefore been necessary to investigate the skotographic property upon crude material, and for this purpose the ether-extracted, dried, and powdered original material and watery extracts that have been freed from protein in the way already described have chiefly been used.

Relation of substance to the photographic film; contact; proximity; screens.—All the skotographic effects to which reference was made in the first lecture were obtained by allowing the powdered substances to lie in actual contact with the photographic film, but there is no doubt that they can act at a little distance. This is better seen in considering the watery extracts, for when they were under investigation contact with the film was necessarily excluded. Attempts were made to determine the maximum distance at which recognisable skotographic effect is produced by exposing a glass plate bearing the watery extract to the photographic plate at an angle. In this way, and using photographic plates specially sensitised for x-ray work, it was found that the watery extract used for producing Fig. 7 is still effective when it is separated from the film by a distance of 15 millimetres.

The question of screens between the material and the photographic film is one of fundamental importance in trying to arrive at a conclusion as to the nature of skotographic action, and must therefore be dealt with in some detail. It may be stated at the outset that interposition of a screen of the order of thickness of that used in examining the effects of recognised radio-active materials, such as uranium or thorium, between the animal substance under investigation and the photographic film completely eliminates skotographic action. This is true whether the screen be metallic (e.g., aluminium) or non-metallic (e.g., mica), however intense the skotographic action may be in the absence of a screen, or however long (up to six weeks) the exposure may have been, and even though it have been carried out at 55° C.

On the other hand, the matter is not simple, as the following experiments show. If a flat section of an areca nut or of liver be coated with a thin film of celloidin and the whole be exposed to a photographic plate in the ordinary way it will be found that the greatest deposition of silver occurs on that part of the plate which was separated from the substance by the celloidin. That this effect is not due to the celloidin itself is shown by the fact that an old film of celloidin is entirely without skotographic effect, and in the areca nut experiment the celloidin had been painted on the nut two years before it was exposed to the photographic plate. (Fig. 6). In the second place, if an albuminate of thorium be made by allowing a solution of the nitrate to fall into egg-white the resulting precipitate after drying and powdering fails to affect a photographic plate through a film so thin as that produced by brushing a minute quantity of egg-white over tissue paper, though a fair deposition of silver occurs when the albuminate is separated from the photographic film by tissue paper uncoated with egg-white. Such an albuminate of thorium contains about 10 per cent. of the radio-active element by weight. Even in this case it is possible that such direct skotographic effect as was produced was due to uncombined radio-active salt, since the precipitate was not washed for fear of hydrolysis. In several instances where the precipitate with thorium was washed

DESCRIPTIONS OF ILLUSTRATIONS ON PAGE 1805.

FIG. 1.—Skotograph of dried, powdered, ether-extracted, non-malignant liver.

FIG. 2.—Skotograph of pure cholesterin gall-stone. Action occurs well beyond the limits of the calculus.

FIG. 3.—Skotograph of dried, powdered, ether-extracted primary spheroidal cell carcinoma of breast.

FIG. 4.—Skotograph of dried, powdered, ether-extracted pulmonary metastasis from a case of spheroidal cell carcinoma of the breast.

FIG. 5.—Skotograph of a mixed phosphatic and uratic calculus.

FIG. 6.—Skotograph of a section of a betel nut. The dark crescent was at the seat of a film of celloidin two years old.

FIG. 7.—Skotograph produced by a protein-free watery extract of sheep's liver. Material prepared and skotograph taken March 24th, 1908. Compare with Fig. 10.

FIG. 8.—Skotograph showing that the power of affecting a photographic plate in the dark manifested by dried, powdered, non-malignant liver (top quarter) is entirely removed (bottom quarter) by extraction with water and subsequent extraction with ether. The extracts possess strong skotographic power.

FIG. 9.—Skotograph showing that the effective agent in cedar wood oil can be transported in a current of air. The air impinged on the photographic plate at the apex, or left angle, of the triangle of silver deposition.

FIG. 10.—Skotograph with protein-free watery extract of sheep's liver used to produce Fig. 7 over a year after original preparation.

FIG. 11.—Skotograph of a phosphatic calculus removed by Percival Pott (died 1788).

FIG. 12.—Skotographs on Ilford x ray and on Imperial special rapid plates produced by the same sample of dried, powdered, ether-extracted carcinoma material under identical conditions. Compare with Fig. 13.

FIG. 13.—Skotographs on Ilford x ray and on Imperial special rapid plates produced by the same sample of sawdust under identical conditions. Compare with Fig. 12.

FIG. 17.—Skotographs of dried, powdered, and ether-extracted testis and ovary of herring. The testis produces the greater deposition of silver.

Fig. 1.

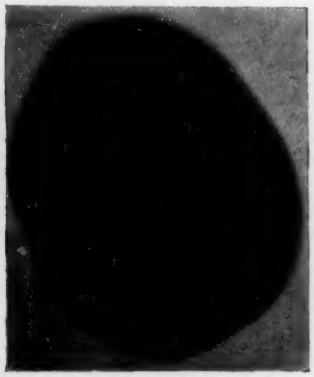


Fig. 2

Fig. 3

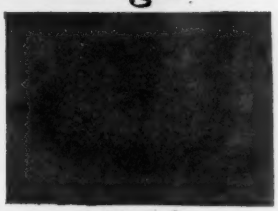


Fig. 4

Fig. 5

Fig. 7.

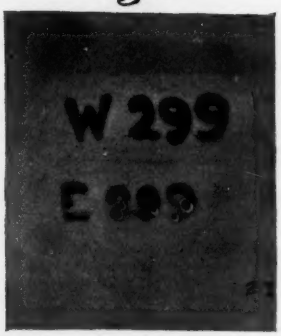


Fig. 8.

Fig. 6.

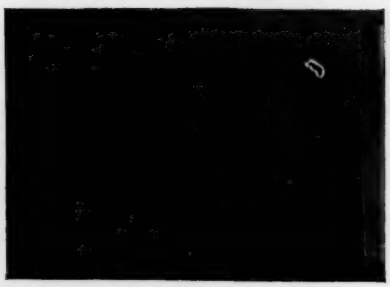


Fig. 9

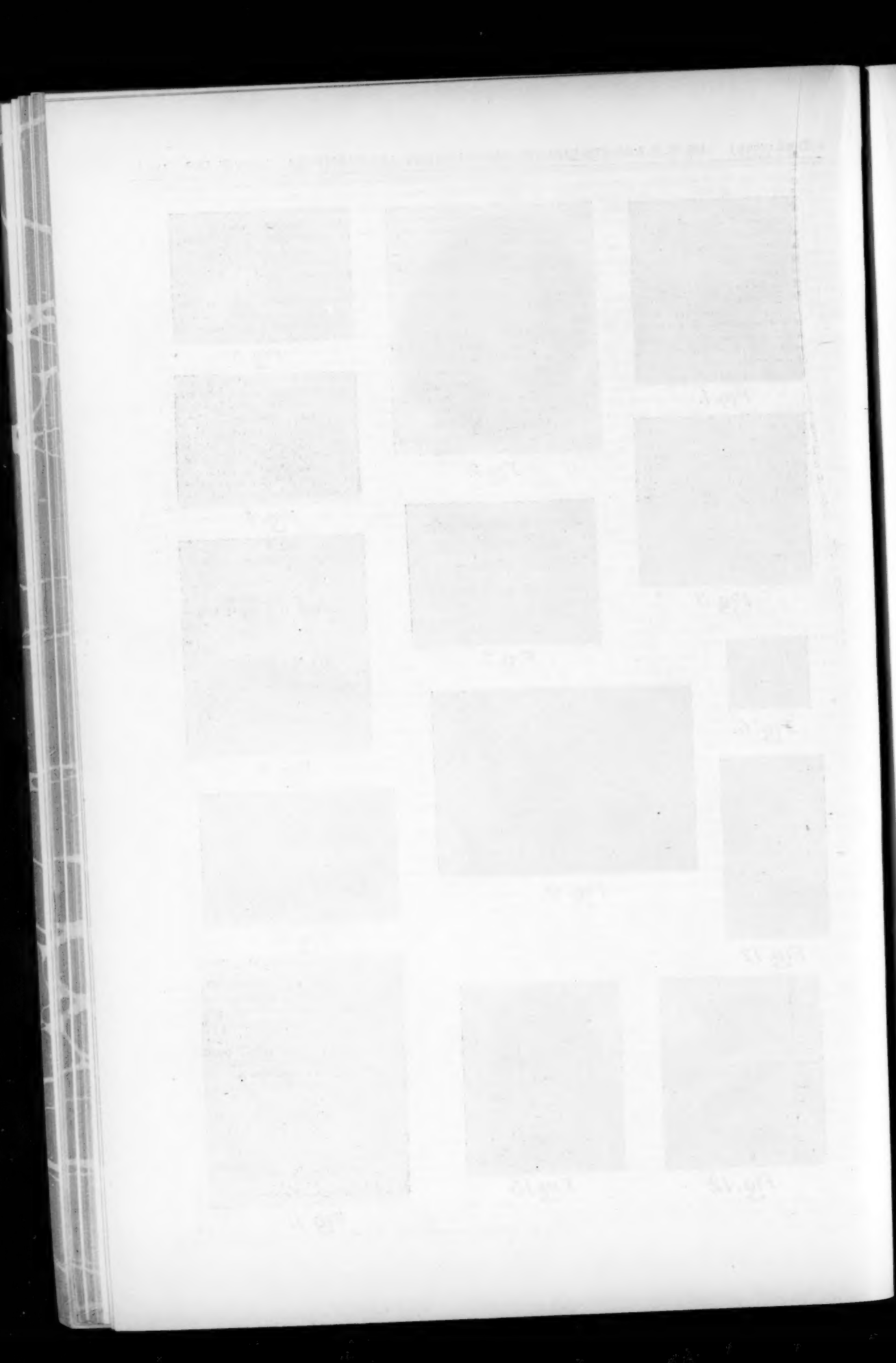
Fig 10.

Fig. 17

Fig. 12

Fig. 13

Fig. 11



thoroughly with hot water before drying it failed to produce an effect upon the photographic plate, even though it were actually in contact with it during exposure; nevertheless, such samples of albuminate showed the presence of considerable amounts of thorium on analysis. Hence under special conditions a vegetable or animal tissue may produce skotographic action through a thin film of celloidin, and a radio-active substance may fail to affect a plate through a film of egg-white of probably even a greater tenuity.

Effect of temperature.—Within the limits of − 3° C. and 100° C. it may be said that the skotographic action of the tissues is independent of the temperature provided that the exposure be longer at the lower temperatures. Thus, a degree of silver deposition which can be attained by exposing a cholesterin gall-stone for 18 hours at 55° C. to the photographic plate can only be attained after an exposure lasting for weeks at the room temperature and probably for several months in the ice-chamber at − 3° C. Exposure of the substance to a plate at a dry heat of 100° C. is an unsatisfactory procedure, but if the exposure be shortened to about half an hour silver deposition is not general but is confined to the part with which the substance under investigation was in contact. The general temperature at which the skotographs in this research were taken was 55° C., and the length of exposure was 18 hours. Except in certain cases imperial special rapid plates were used and development was by 1—20 Rodinal.

Above I have dealt with the temperatures at which the substance has been exposed to the photographic plate, but the substance itself may be exposed to a much higher temperature without undergoing complete loss of skotographic power. I have not been able to determine with exactness the highest temperature to which a skotographic substance may be raised without undergoing complete loss of its power, but it is certain that a skotographic watery extract painted in a thin layer upon a No. 1 coverslip and exposed to dry air at about 280° C. for five minutes will probably afford evidence of skotographic power, while a similar coverslip exposed to about 300° C. will not. In any case it is certain that the skotographic power is not destroyed by a temperature (about 200° C.) which chars the substance itself and therefore in large measure disintegrates it.

Leaving on one side such points as the fact that the change in the photographic plate is not due to the hygroscopic character of the partially purified photographic substance, the gradual disappearance of the power on continued exposure to air, the curious way in which occasionally there occurs a recrudescence of skotographic power in a watery or acetone extract, the fact that the power is independent of the acidity, basicity, or neutrality of a watery extract, points which have been made the subject of many experiments and are of great theoretical interest, I pass to certain experiments instituted in order to compare the photographic power of animal tissues with that manifested by woods and held by Russell to depend upon the presence of hydrogen peroxide.

Light and darkness.—Russell found that the skotographic power of a wood is profoundly influenced according as it has been exposed to light, and especially direct sunlight, or has been kept in darkness before exposing it to the photographic plate. If exposed to light the skotographic power is always intensified; if kept in darkness it is always diminished. In the case of animal tissues and of calculi of different kinds this point has been carefully investigated by myself and by Colwell respectively. We agree in finding that our substances do not show the slightest difference in skotographic power, even though they may be exposed to direct sunlight or be preserved in total darkness for a period of six months before placing them in contact with the photographic film.

Volatility.—Inasmuch as the skotographic power of an animal substance disappears after about a fortnight if it be exposed freely to air it was thought that the effect might be due to some volatile product. Apart from the fact that it is difficult to imagine a volatile substance which can withstand a temperature of 300° C., lower than which the skotographic power is not destroyed, the question has been approached directly. By causing a current of air which had passed over cedar wood oil, or clove oil, or oil of cajeput, or oil of origanum, to impinge upon a photographic film, it was found that volatility, as such, is not the effective cause of a skotographic effect since a skotographic effect was produced in the case of air charged with the volatile products of oil of cedar wood alone. Further, it has never been found possible to carry over the skotographic power of any of the substances used in the present research although they frequently give off volatile products with powerful odours that can be detected in the stream of air impinging upon the photographic film by the sense of smell. Fig. 9 shows the skotographic effect of a current of air charged with the volatile products of cedar wood oil.

Experiments bearing on the question whether skotographic action is essentially due to hydrogen peroxide.—These are of two kinds. In one set Colwell took a cholesterin gall-stone which yielded a profound skotographic effect and prepared from it a sample of purified cholesterin. Examined skotographically this purified cholesterin was absolutely without effect. He now exposed a thin film (made by dissolving the cholesterin in chloroform, pouring on a glass plate, and allowing the chloroform to evaporate) to an atmosphere fully charged with hydrogen peroxide vapour for 24 hours at a temperature of 53° C. Similarly he exposed to hydrogen peroxide vapour a vesical calculus normally possessing no skotographic power. He found that now both cholesterin and vesical calculus affected the plate profoundly, but that within 23 hours of their removal from the atmosphere of hydrogen peroxide they had completely regained their original freedom from skotographic power. Probably the last traces of hydrogen peroxide had disappeared long before 23 hours, but of this there is no proof. This experiment bears upon the length of time during which skotographic power is held by a substance, a subject which will claim our attention shortly.

The second set of experiments concerns the so-called peroxydase effect shown by certain tissues. In its best known form the peroxydase reaction is represented by the guaiacum test for blood. It depends upon an oxidation of the traces of guaiaconic acid present in the freshly prepared tincture of guaiacum by oxygen that has been set free from hydrogen peroxide by a substance (peroxydase) present in the substance undergoing the test.

In examining a large number of dried and powdered tissues from this point of view as well as from that of their skotographic power I found, speaking generally, that the degree of peroxydase reaction manifested by them and measured against a standard graduated series of blue solutions varies inversely with the skotographic power. This is seen in the two series of ten consecutive specimens given below.

No.	220	221	222	223	224	225	226	227	228	229
Tissue	K.	Lg.	Lr.	K.	Lg.	S.	Lr.	K.	S.	Lg.
Photographic value	6	4	3	4	2	3	4	2	2	0
Peroxydase value	0	6+	5	0	4	6+	0	0	4	2

No.	320	321	322	323	324	325	326	327	328	329
Tissue	Lr.	K.	Lr.	K.	Lr.	K.	Lr.	K.	Lr.	K.
Photographic value	6	3	5	3	5	2	4	2	3	2
Peroxydase value	2	4	3	5	0	6	1	4	5	6

K. = kidney; Lg. = lung; Lr. = liver; S. = spleen.

This fact would seem to indicate that a tissue possessing a large amount of a substance which splits up hydrogen peroxide has but little skotographic power, and conversely that a substance exerting a great skotographic power contains but little of the hydrogen peroxide-splitting property. From this it is but a step to the conclusion, with Russell, that the skotographic property is in reality nothing more than a manifestation of the action of hydrogen peroxide upon a photographic plate. But that this conclusion is not justified is shown by two sets of observations. Firstly, I have found that skotographic effect may be shown by watery extracts which from beginning to end of their exposure to the photographic plate contain peroxydase, and are therefore in a condition to split up any hydrogen peroxide that may be formed immediately on its production. And secondly, the inverse relations of peroxydase and skotographic power do not obtain for dried and powdered carcinomatous material, for such material, whether it produce a great skotographic effect or a slight one or no effect at all, is devoid of peroxydase. Amongst 17 samples of dried and powdered carcinomatous material examined for the purpose only four

contradictions were found. One of these is explicable by the fact that the growth was a pulmonary metastasis and probably contained some pulmonary tissue, which has, normally, a high peroxydase co-efficient, and the remaining three, all of which were hepatic metastases, gave the least recognisable amount of peroxydase.

Duration of skotographic power.—Strictly speaking, the length of time during which a substance retains skotographic power can only be determined in the case of such materials as have actually been prepared. Thus, the material used in the production of Fig. 7 was prepared on March 24th, 1908, and inasmuch as a skotograph taken with the same substance a year later (Fig. 10) also shows effect, it is clear that the substance in question retained the power for that length of time. Numerous skotographs taken at intermediate times show that the power has been present throughout. From the time of its preparation the substance was kept in a clear stoppered bottle in the laboratory without any special precautions. This experiment renders it probable that a substance which at any time shows skotographic power also possessed it at the time of its original formation, and this assumption becomes of importance in connexion with the skotographic power of calculi. Colwell has shown that cholesterin calculi will often produce intense skotographic action directly after their removal from the body, but he has also shown that intense skotographic power may be shown by a cholesterin gall-stone that has been preserved in the museum of the hospital for over 25 years. In the case of vesical calculi he goes much further, for a calculus removed by Percival Pott, who died in 1788, shows well-marked skotographic power (Fig. 11), and faint but definite skotographic power is shown by a calculus removed from the body of a predynastic Egyptian mummy and therefore at least 7000 years old.[7]

Use of photographic plates specially sensitised for x ray work.—Recently plates have been placed upon the market which are specially sensitised for x ray work. It was thought that a series of comparative tests of the same substances, when exposed to these and to ordinary plates, might indicate whether the skotographic power of the substance under examination was more akin to light or to x rays. Dried, powdered, and ether-extracted carcinomatous material from a metastasis in the liver and ordinary deal sawdust were examined in this way. It was found that the first appearance of action on the x ray plate occurred at the end of the sixth hour of exposure and on the "Imperial special rapid" plate not till the end of the seventh hour (the powdered growth being separated from the photographic films by thin layers of filter paper), and that the ultimate density of silver deposition was greater also on the x ray plate. When the material was not separated from the photographic film by filter paper the first appearance of action was observable on both plates at the end of the first hour of exposure, but whereas it was quite marked on the x ray plate it was only just distinguishable on the other. In the case of sawdust these differences did not show themselves, the deposition of silver on the ordinary plate being very nearly, though not quite, as intense as that on the x ray plate. (Figs. 12 and 13.)

Skotographic action of bacteria.—MacCormac[8] has published the results of an investigation into the question whether skotographic action is exerted by bacteria. He examined in this respect 27 different varieties of micro-organism, and from his table they may be grouped as below:—

Group I. No skotographic action.—B. Rabinowitch. B. Cohn I. B. Gärtner. B. phosphor. albiensis. B. intestinalis sporog. B. Danysz. B. mycoides. B. coli. V. choleræ.

Group II. Skotographic action fickle.—Sarc. flava. B. Flexner. V. Metchnikovi. B. Hoffmann. B. Megaterium. M. citreus agilis. B. pyocyaneus. B. phlei II. B. prodigiosus. B. typhosus.

Group III. Skotographic action usual and considerable.—Staph. pyog. aureus. Staph. pyog. albus. B. tuberculosis. B. tuberculosis bovinus. B. diphtheriæ. "Pathogenic throat yeast." The importance of these researches will be indicated later.

Summary.—In this and the preceding lecture I have shown that certain of the tissues of the human body show skotographic action (liver, kidney), while certain do not (spleen, lung); that a larger amount of this property resides in female tissues that possess it than in male of the same kind; that the amount present in the liver increases from infancy to the age of 55 years with an unexplained drop in both sexes during the age-period 35–45, and that after 55, while it increases still further in the case of males, in females it undergoes a sharp diminution. I have shown that carcinomatous material possesses skotographic power, whether it be primary or secondary, and that female carcinomatous tissue has a higher skotographic value than male; and that the existence of a mass of carcinoma in a tissue modifies its normal skotographic value. I have found that certain substances commonly supposed to be causally related to carcinoma possess the skotographic power to a high degree (cholesterin gall-stone), while others are devoid of it (clay pipe, paraffin). I have endeavoured to throw some light upon the nature of the skotographic action manifested by animal tissues and certain other substances, comparing their behaviour with that of woods in which the action has been regarded as dependent upon the formation of hydrogen peroxide, and with that of recognised radio-active substance. On this point I have adduced evidence showing that the animal tissues and other substances under examination cannot, as far as their action upon a photographic plate in the dark is concerned, be grouped conclusively with the recognised radio-active substances or segregated into a class, such as that formed by the woods, and believed by Russell to affect a photographic plate in the dark by means of a purely chemical action. They occupy an intermediate position and have affinities with the woods on the one hand, and with the recognised radio-active substance on the other. Lastly, MacCormac, working in my laboratory, has shown that bacteria may be divided into groups according to their skotographic power and that the only group which acts in this way with constancy and to a marked degree is a small one which includes the pyogenetic staphylococci and the bacilli of tuberculosis and diphtheria. The bearing of these observations upon the question of carcinoma must be left for consideration in the last lecture.

LECTURE III.

THE ELECTRICAL PROPERTIES OF RECOGNISED RADIO-ACTIVE SUBSTANCES, OF NON-MALIGNANT TISSUES, OF CARCINOMATOUS MATERIAL, AND OF CERTAIN SUBSTANCES COMMONLY SUPPOSED TO BEAR A CAUSAL RELATION TO CARCINOMA.

THE researches to which I am now about to refer have been in progress for the past three and a half years nearly continuously. This length of time was necessitated partly by the importance of controlling certain of the results, but mainly by the fact that the differences between the control and the experimental conditions are so small that special care was necessary for their determination. The rate at which the electricity on charged gold leaves leaks from them is dependent upon so many factors that unless the extrinsic causes of leak are reduced to the lowest possible point small intrinsic differences are entirely lost sight of. Electroscopes in which the natural leak is greater than about one millimetre per hour are quite useless for the purpose; in the majority of the cases the charged leaves approximated over a fixed distance at a rate of about 0·6 millimetre per hour and in a large number the rate was about 0·2 millimetre per hour. It follows that the length of time necessary to obtain a single observation, whether control or experimental, is considerable; in no instance has it been possible to obtain more than one observation per day and in certain of the experiments it took two days to obtain each observation. This difficulty was obviated to some extent by using several electroscopes. As a rule, two control electroscopes (charged + and − respectively) and eight experimental electroscopes (four charged + and four charged −) were under observation.

It is unnecessary to enter here into a description of the apparatus or of the precautions taken; they are sufficiently

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[7] This calculus is preserved in the Museum of the Royal College of Surgeons of England and was kindly lent by Mr. Shattock. Owing to its unique character it was impossible to deal with it as with other specimens. Hence a flat surface could not be placed in contact with the photographic film. The original skotograph was shown during the lecture, but the markings, though definite, are too faint for reproduction in a plate without re-touching, which is, of course, inadmissible.

[8] Archives of the Middlesex Hospital, 1909, vol. xv. (Eighth Cancer Report, p. 177.)

described elsewhere.[9] Similarly it is unnecessary, in the majority of cases, to refer to the actual experiments. It will suffice to state that the object of the research was to determine whether the leak of a fully-earthed lead electroscope differed according as it did not contain or contained one of the substances under investigation.

The substances examined were liver, kidney, lung, and spleen (four specimens of each) from non-malignant cases, four specimens of hepatic substance from livers the seat of carcinomatous metastasis, four specimens of the inorganic constituents of bones from non-malignant cases, four specimens of the inorganic constituents of bone from cases of carcinoma, in one of which the bone itself was the seat of secondary growth, and 12 specimens of carcinoma. Of substances supposed to be causally related to carcinoma the following have been examined electrically: three samples of clay pipe, each sample consisting of portions of three distinct pipes from different sources, powdered and mixed, two samples of soot, one sample of impure cholesterin gall-stone from a case of columnar cell carcinoma of the gall-bladder, one "pure" cholesterin gall-stone, "pure" pigment gall-stones, four samples of pitch from different localities, three samples of paraffin wax, three samples of areca nut, and one sample each of metallic arsenic, arsenious oxide, and coal. In addition to the above, experiments have been carried out in connexion with the recognised radio-active substances uranium, thorium, and pitchblende, in order to throw light, if possible, upon certain unexpected electrical phenomena.

In the case of the carcinomatous material diagnosis was always made microscopically. Four cases were primary (cervix, cervix, tongue, and breast) and eight metastatic. Of the latter, six came from the liver, the sites of the primary growth being rectum (three cases), breast (two cases), stomach (one case); the remaining two were pulmonary metastases from cases of mammary carcinoma. The substances were introduced into the electroscopes in the dried powdered state to which they had been reduced for skotographic examination.

Results of experiments.—In the case of carcinoma material which has been extracted with water and subsequently with ether, or has been extracted once and for all with acetone, there is strong evidence that the leak of the electroscope is accelerated, and that, whether the charge on the leaves be + or −. Similarly, there is evidence that the inorganic constituents of bone, whether taken from non-malignant or from carcinomatous cases, accelerate electroscopic leak, whether the charge on the leaves be + or −. And thirdly, clay pipe, and possibly one sample of soot, acted in an identical manner.

So far, therefore, there is evidence to satisfy the physicist that the substances mentioned above are "radio-active" in the physico-chemical sense of the term. But already difficulties have arisen, for whereas the carcinomatous material produces skotographic effects when it has been extracted with water alone or with ether alone, it fails to do so when it has been extracted with both, or with acetone, while the inorganic constituents of bone and the clay pipe are equally non-skotographic.

The difficulty becomes much greater, however, when it is found that substances exist which, so far from accelerating the discharge of the electroscope or being without appreciable effect, actually *retard the leak whether the charge on the leaves be + or −*. I make this statement with a full sense of the responsibility I am incurring. I am aware that the physicist does not recognise such retardation, or "anti-radio-activity," as it may be termed. I am aware that it includes theoretical considerations of great magnitude, that if recognised radio-activity means the breaking up of large atoms into smaller ones, anti-radio-activity may mean the synthesis of elements with high atomic weight from elements with lower atomic weight. But I have carried out the experiments with the utmost care of which I am capable and have found evidence of anti-radio-activity a sufficient number of times to be convinced of the accuracy of my observations. Moreover, as the following experiments will show, I believe that evidence of anti-radio-activity may be obtained by the use of recognised radio-active substances themselves.

If an aluminium disc be kept in close proximity, but not in contact, with uranium or thorium or pitchblende for 48 hours under fully earthed conditions, and its influence upon electroscopic leak after such exposure be compared with its influence before exposure, it will be found, I believe, that the rate of leak has become retarded. This retardation persists for many days and is independent of the sign of the electricity with which the leaves are charged. Full details of the experiments are given elsewhere;[10] it will suffice to give here a summary of the results obtained in an experiment lasting over four months and carried out in order to re-investigate the question owing to the adverse criticism to which the first set of experiments had been exposed. This second experiment completely confirmed the first.

Experiments showing that an Aluminium Disc which has been kept in proximity to a recognised Radio-active Substance has acquired Retarding or Anti-radio-active Properties on Electroscopic Leak. The Values are the Mean Differences between the Experimental and the Control Electroscopes.[11]

I. Electroscope in which was examined the aluminium disc placed in proximity to uranium nitrate.

Control period.	Blank experiment.	Actual experiment.
− 25 mm.	− 25 mm.	− 27 mm. (29 observations for retardation to 10 for acceleration.)

II. Electroscope in which was examined the aluminium disc placed in proximity to uranium oxide.

Control period.	Blank experiment.	Actual experiment.
+ 86 mm.	+ 85·5 mm.	+ 82 mm. (36 observations for retardation to 9 for acceleration.)

III. Electroscope in which was examined the aluminium disc placed in proximity to pitchblende.

Control period.	Blank experiment.	Actual experiment.
− 18 mm.	− 21·5 mm.	− 26 mm. (44 observations for retardation to 2 for acceleration.)

IV. Electroscope in which was examined the aluminium disc placed in proximity to thoria.

Control period.	Blank experiment.	Actual experiment.
− 31 mm.	− 34 mm.	− 38·5 mm. (37 observations for retardation to 9 for acceleration.)

Note.—In the case of thoria the observed acceleration occurred on the first four days of each of the two parts of which the actual experiment consisted and was evidence of the well-known "induced radio-activity" due to thorium.

The following experiment shows that a similar retarding property is conferred upon an aluminium disc that has been placed in proximity to a substance that itself has retarding influence upon electroscopic leak. This experiment was carried out at the same time and under the same conditions as those mentioned above.

V. Electroscope in which was examined the aluminium disc placed in proximity to a cholesterin gall-stone.

Control period.	Blank experiment.	Actual experiment.
− 3 mm.	− 4 mm.	− 8 mm. (41 observations for retardation to 5 for acceleration.)

Returning now to a consideration of carcinomatous material itself, it appears that the electrical properties differ according as the substance has or has not been extracted before its influence upon electroscopic leak is determined. Moreover, the extract exerts a definite influence upon the leak and that influence is in the opposite direction to that exerted by the extracted substance. This is shown by the

[9] Archives of the Middlesex Hospital, vol. vii. (Fifth Cancer Report), 1906, p. 190. In this article and in articles that have appeared in the Sixth and Eighth Cancer Reports (1907 and 1909) full details are given of the experiments upon which the conclusions referred to in this lecture are founded.

[10] Loc. cit.

[11] Cf. Archives of Middlesex Hospital, vol. xv., 8th Cancer Report, 1909, p. 145.

following table condensed from one given by me elsewhere.[12]

Table showing the Influence upon Electroscopic Leak of Four Specimens of Carcinomatous Material Before and After Extraction, and of the Extracts Themselves.

—	I.		II.		III.		IV.	
Charge on gold leaves	−	+	−	+	−	+	−	+
Carcinoma, dried and powdered ...	A	A	R?	O	A	O	A	O
Above after extraction with ether ...	A	A	R	A	A	A	A	A
Above after extraction with ether and subsequent extraction with water	A	A	A	A	A	A	A	A
Ethereal extract of above	R	R	R	R	R	R	R	R
Watery extract of above after its extraction with ether	R	R	A?	R	A	R	R	R

"A" is used to signify acceleration; "R," retardation; and "O," zero.

The manner in which the uncertain influence upon electroscopic leak exerted by the substance when simply dried and powdered gives place to an increasing evidence for an accelerating power after each extraction, the powerfully retarding character of the first extract and the less powerful but still distinctly retarding character of the second afford a chain of evidence, not only for the existence of "anti-radio-activity" but also for the presence of both forces in carcinoma tissue, that cannot lightly be dismissed. So far as concerns the accelerating influence of carcinoma material after extraction, the conclusion given above is supported by the results of examining electroscopically eight other specimens extracted with acetone.

While carcinoma tissue after extraction accelerates the leak, this is not the case with liver or lung from non-malignant cases. These extracted tissues were found uniformly to retard leak. The acetone extract of non-malignant liver, however, agreed with that from carcinoma tissue in retarding leak, and the unextracted tissue showed a less tendency to induce retardation than the extracted. Below are given the results obtained with four specimens of liver from non-malignant cases.

Table showing the Influence upon Electroscopic Leak of Four Specimens of Liver from Non-malignant Cases Before and After Extraction and of the Extracts Themselves.

—	I.		II.		III.		IV.	
Charge on gold-leaves	−	+	−	+	−	+	−	+
Liver, dried and powdered	A	R	R?	R	R	R	R	R
Above after extraction with acetone	R	R	R	R	R	R	R	R
Acetone extract	R	R	R	R	R	R	A	A?

"A" signifies acceleration; "R," retardation.

In the first lecture evidence was given to show that the skotographic action of an organ which is the seat of carcinomatous metastasis differs from normal. Examination of four specimens of hepatic tissue from livers the seat of carcinomatous metastasis shows that the new growth also influences the electrical properties. Thus in the table immediately preceding, the evidence for retardation exerted by the four specimens of acetone-extracted liver (each of which retarded the leak whether the sign on the leaves was − or +) consisted of 76 individual observations of retardation to four of acceleration. In the case of hepatic substance from livers the seat of carcinomatous metastasis, not only did two of the specimens show discordant results affording evidence of acceleration in the electroscope charged with one sign and retardation in the electroscope charged with the other, but the total number of individual observations in favour of retardation was only 52, against 28 in favour of acceleration.

Comparison of the results obtained with the inorganic constituents of bones from non-malignant and those from malignant cases affords confirmatory evidence of the influence of carcinoma upon the electrical properties of the tissues, but here the natural influence of the inorganic constituents appears to be accelerative, and in carcinoma the tendency is increased. Thus two out of four samples of inorganic constituents of bone from non-malignant cases afforded discordant results showing acceleration in the electroscope charged with one sign and retardation in the other, while the total number of individual observations in favour of acceleration was 41 against 29 for retardation, whereas when derived from cases of carcinoma the discordancy was somewhat less and the total number of individual observations in favour of acceleration was 53, against 27 for retardation.

Leaving on one side the evidence afforded by electrical examination of kidney and spleen on the ground that the results are not sufficiently clear to allow of deductions being drawn, I pass to the consideration of substances commonly supposed to be causally related to carcinoma. In this part of the subject the evidence that I have to offer is of different value in different cases. Electrical examination of clay pipe, of paraffin wax, and of cholesterin gall-stone has been carried out on so many occasions that I have more confidence in the case of these substances than in that of others of which the electroscopic examinations are clearly too few. Here I can only beg your indulgence and plead the motto of our College as an excuse (*ὁ βίος βραχὺς ἡ δε τέχνη μακρή*).

I have already stated that I find evidence that clay pipes exert an accelerating influence upon electroscopic leak, whether the gold leaves be charged − or +. In the case of paraffin and cholesterin gall-stone the evidence is no less clear, but both substances exert a retarding influence; and, again, whether the electrical charge on the leaves be − or +. Experiments with different samples of pitch seem to show, on the whole, that this substance exerts a retarding influence, but there is no reason to suppose that a uniform effect would be produced by all samples of this or of any other substance of an impure or complex nature. The same criticism holds good in the case of soot, one sample of which yielded me evidence of retardation, while the other gave uncertain results. Metallic arsenic, arsenious oxide, and areca nut appeared to be without effect upon electroscopic leak, but too few experiments were made with them to allow me to speak with confidence.

In my experiments with the substances mentioned above—some of the earliest made in the entire research—I sought to show that the accelerating or retarding property was manifested even though the substance under examination were covered with an aluminium cap. In numerous instances this appeared to be the case, and undoubtedly, if true, it would afford convincing proof of the similarity of the action of the substances with that of recognised radio-active substances. But owing to the fact that I have found an aluminium disc to become electrically modified by the proximity of a recognised radio-active substance or of a pure cholesterin gall-stone, my conclusions on this point require reconsideration. It may be added, however, that even if the influence from the substances did not traverse the aluminium it would not disprove the possibility of their being essentially "radio-active," since conceivably they might only give off α particles, or α particles and β radiations of so low a penetrating power that they failed to traverse the aluminium screen.

Having described in brief the electrical effects of the various substances that particularly interest us from a medical point of view, it is now necessary to revert to the recognised radio-active substances.

I have already said that I have reason to believe that recognised radio-active substances induce "anti-radio-activity" in an aluminium disc with which they have been placed in proximity, though not in contact, for a certain length of time. This change, I believe, is indicated by the acquisition of a retarding power by the disc on electroscopic leak. But there is no doubt that a metallic surface that has been bombarded by radio-active rays manifests physical change of a gross kind. Thus, the anticathode of an x ray tube not infrequently becomes perforated in course of time; an aluminium disc which has been exposed to radium for four months shows actual pits on its surface; while an aluminium disc exposed to the relatively feeble radio-activity of uranium for four months shows a loss of polish of its surface over an area corresponding to that which had been in proximity to the uranium. In the last lecture it will be shown that animal cells in like manner afford evidence of altered behaviour as the result of proximity to recognised radio-active substances.

This brings us to a consideration of extreme importance. There is no doubt that the facts and the conclusions of the chemist and physicist cannot be applied to biological problems in a crude manner. It is unnecessary to labour this point. It is supported by the whole of chemical

[12] Ibid., p. 127.

physiology and pathology, from so simple an example as the fact that iron in combination with globulin in the form of hæmoglobin fails to give the ordinary chemical tests for inorganic iron to the complicated problems of immunity which have shown repeatedly that the animal body is not a mere test tube in which a simple chemical process is taking place. In a word, for the biologist a necessary preliminary to a consideration of radio-activity as understood by the chemist and physicist is a determination whether the radio-active element when in combination with protein behaves in the same way as it does when in combination with other elements to form an "inorganic" compound. It is in the latter form alone that it has been examined by chemist and physicist.

Even if a series of inorganic compounds of a radio-active element be examined it will be found that the radio-activity as measured by the rate of leak of an electroscope is not identical for all of them. Thus Colwell and I have shown that the rate of leak of an electroscope in which are examined a number of uranates of the alkalies and alkaline earths as well as the nitrate and sulphates of uranium varies inversely as the atomic weight and the valency of the elements with which the uranium is linked. From this we argued that uranium in combination with the huge protein molecule would show a correspondingly enormous diminution of its influence on electroscopic leak.[13] This proved to be the case. We showed, further, that the radio-activity of the uranium is not lost, but only masked, for the ash of an incinerated albuminous compound of uranium or of such inorganic compounds as the nitrate and sulphates of uranium or ammonium uranate (which are more or less completely disintegrated on incineration with the formation of an ash consisting chiefly or entirely of an oxide of uranium) produces a profound acceleration of leak. Similar results were obtained with the nitrate and sulphate of thorium and a thorium albuminous compound. Full details will be found in the original paper. Below are given examples in illustration of the statements made above:—

Mean Values of Electroscopic Leak in the Presence of Certain Uranium and Thorium Compounds in the Natural State and After Incineration.

—	Mean rate of leak per hour in millimetres.	
	Natural state.	Incinerated.
Black uranium oxide	175	177
Ammonium uranate	125	171
Thallium uranate	101	114
Uranyl sulphate	91	177
Uranyl nitrate	80	167
Uranous sulphate	62	159
Uranium-Witte-peptone	22·4	126
Uranium-serum (pleural fluid)	13·5	85
Uranium-egg-white	13	96
Uranium-spleen-pulp	10·9	53·6
Thorium sulphate	62	124
Thorium nitrate	55	142
Thorium-egg-white	7·5	41·4

Natural leak of empty electroscope 3·6 millimetres per hour.

Now the uranium and thorium albuminous compounds contained about 10 per cent. of the radio-active element by weight, and it has already been said that their photographic effect is small and may be completely wanting, even though they be allowed to act on the film through a thin layer of air, while at least the thorium compound fails to affect the film through a screen so thin as that formed by brushing egg-white over tissue paper. Evidence of radio-activity in the physical sense is, therefore, reduced to a very low point, and it is easily conceivable that with smaller percentages of the radio-active element, or in combination with still larger molecules or combinations of molecules, all evidence of "radio-activity" should be lost, although the fact that the substance in question contains the recognised radio-active element would be immediately demonstrable on removing the impeding constituents of the compound by incineration.

Proceeding on these lines, I have incinerated animal substances of all kinds in the hopes of setting free a radio-active substance that would be recognised by physicists and chemists, but without success. Clearly the tissues contain no radio-active substance which can survive exposure to a white heat. Whether they contain a radio-active substance that can withstand a temperature of 300° C., after which skotographic action disappears, but is dissipated or disintegrated between 300° C. and the temperature of white heat, it is impossible to say. In any case experiments with albuminous compounds of recognised radio-active substances, such as uranium and thorium, indicate that small evidence of radio-activity manifested by an animal tissue does not necessarily mean that that tissue contains only a small amount of a radio-active element. The smallness of the evidence may simply depend upon the relative completeness with which the radio-activity is masked by the albuminous molecules with which the radio-active element is in combination.

By comparing the rates of electroscopic leak when the substance is directly exposed to the charged leaves and when it is separated from them by a screen of thin aluminium foil it is possible to separate that portion of the leak which is due to the impact of α particles from that portion due to β and γ rays. As is shown by the following table, the masked radio-activity consists chiefly, if not entirely, of α particles. In the case of thorium compounds the table is of particular importance, inasmuch as it not only shows the great increase of leak due to α particles after incineration but also an enormous disappearance of some radio-active element producing β and γ rays during incineration. It is necessary to add that the amount of radio-activity that is removed from thorium compounds by incineration varies considerably under a number of circumstances that need not be mentioned here, but that all the thorium compounds given in the table were prepared from a single sample of thorium and are comparable amongst themselves, though not with those given in the preceding table.

Portions of the Rate of Leak per Hour occasioned by Certain Uranium and Thorium Compounds due to α Particles and to $\beta + \gamma$ Radiations.

—	Natural state.		Incinerated.	
	α particles.	$\beta + \gamma$ rays.	α particles.	$\beta + \gamma$ rays.
Black uranium oxide	145·8	29·2	144·0	33·0
Ammonium uranate	101·2	23·8	145·5	25·5
Thallium uranate	79·4	21·6	82·6	21·4
Uranyl sulphate	57·0	35·0	142·8	37·2
Uranyl nitrate	52·4	27·6	151·9	35·1
Uranous sulphate	52·8	11·2	127·0	11·0
Uranium-egg-white	4·8*	0·6*	124·0	1·8*
Thorium sulphate	24·1	77·9	78·4	27·6
Thorium nitrate	21·7	70·6	127·8	16·2
Thorium hydroxide	104·0	496·0	123·0	22·0
Thorium-egg-white	3·1*	1·4*	46·5	7·8*

* In the case of these low values the ascertained leak has been corrected by the natural leak of the electroscope determined specifically for the purpose on each occasion; elsewhere it is neglected.

As to the work done and the changes produced within the molecule by the imprisoned α particles it is only possible as yet to speculate. Evidence has been given that carcinoma material with its tendency to accelerate electroscopic leak modifies the electrical conditions of the tissue in which it lies; it is not impossible that the bombardment with α particles undergone by an aluminium disc in proximity with a recognised radio-active substance may lead to that "anti-radio-activity" of the disc which I have described.

LECTURE IV.

INFLUENCE OF RECOGNISED RADIO-ACTIVITY AND OF NON-MALIGNANT MATERIAL UPON THE DIVISION OF ANIMAL CELLS. SUMMARY OF RESULTS. THE RELATION OF RADIO-ACTIVITY TO CARCINOMA.

Hitherto the experiments which I have described have been of a chemical or a physical nature; the next step, and the last I am at the present time in a position to make, will

[13] Ibid., p. 156.

be into the animal kingdom. Whatever the results we may have obtained, their sole importance to us as biologists, and even more as medical men, lies in any application they may have to the processes going on in the animal cell. If radio-activity, if the peculiar skotographic and electrical properties we have now found to be associated with a number of substances, some of which are derived from the animal body, influence cell-nutrition, cell-growth, cell-multiplication, they are of interest to us; if not, we may leave them on one side.

The cell which I have chosen for this part of the research is the ovum of ascaris megalocephala, an intestinal entozoon of the horse. When removed from the oviduct the ovum shows a thick cell membrane, a single undivided cell, and a general absence of pigment or food-stuffs. Since it is obtainable in enormous numbers, is clearly visible with a half-inch objective, and passes through the changes up to the formation of a complete living and moving embryo worm within a few days or a few weeks according to the temperature at which development is allowed to proceed, it is very suitable to our purpose. Examination of the development of the ovum when it has been exposed to the influence of recognised radio-activity has been carried out in the case of x rays, radium, thorium, and uranium.[14] The results agree remarkably, not only in their general direction, but also in the fact that certain special effects are produced by the two most potent members of the group, radium and x rays.

The experiments consisted in determining the rates of division of the cells under conditions that differed only in respect of their exposure or non-exposure to radio-activity. In the case of x rays, exposure lasted varying times from two minutes to 20 minutes, and the ova were exposed to the rays at the commencement of the experiment when they were all in the one-cell stage. In the case of radium, thorium, and uranium the ova were exposed to the action of the substance during the whole time of their development. Inasmuch as x rays are γ rays alone, while radium, thorium, and uranium give off α particles as well as β and γ rays, the experiments differed in this respect. Moreover, since the radium, thorium, and uranium were exposed to the ova without any intervening substance except a thin layer of air, the cells were acted on by all three constituents of radio-activity in the case of these substances. Below are given the results of an experiment using x rays:—

Characters of Cell Division in 200 Ova after Exposure to X Rays for Varying Periods.

Immediately after Exposure.
All cells in 1-cell stage.

24 Hours after Exposure (Room Temperature).

—	1-cell stage.	2-cell stage.
Control	158	43
2 minutes' exposure	140	60
4 ,, ,, ...	151	49
6 ,, ,, ...	164	36
9 ,, ,, ...	175	25
12 ,, ,, ...	184	16
15 ,, ,, ...	187	13
20 ,, ,, ...	194	6

48 Hours after Exposure (Room Temperature).

—	1-cell stage.	2-cell stage.	3-cell stage.	4-cell stage.
Control	74	65	26	35
2 minutes' exposure	71	52	22	55
4 ,, ,, ...	81	42	21	56
6 ,, ,, ...	90	46	20	44
9 ,, ,, ...	107	53	21	19
12 ,, ,, ...	104	60	15	21
15 ,, ,, ...	128	43	14	15
20 ,, ,, ...	126	57	13	14

This experiment, which has been repeated on many occasions with similar results, shows conclusively that x rays have a dual effect. Short exposures accelerate, long exposures retard cell division.

Since the ovum does not increase in size during development it becomes impossible to conduct the experiment satisfactorily during the period between the 4-cell stage and the early embryo, but with the formation of the embryo the accelerating and the retarding influences of the x rays again become manifest. Thus the ova concerning which details have been given above were transferred to the incubator at 37° C. during the third and fourth days after exposure to x rays, and it was then found that the control specimen showed immature embryos and one living and moving worm; the 2-minute and 4-minute specimens were indistinguishable from the control and also showed one living and moving worm apiece. But in the 6-minute specimen there were three living worms, in the 9-minute specimen six, in the 12-minute specimen one, in the 15-minute specimen two, and in the 20-minute specimen there were 21 living and moving worms. Here we have evidence of accelerated development. Evidence of the antagonistic influence of the rays on the same specimens of ova was obtained by keeping them in the incubator for a further period of three days, by which time development has proceeded to its furthest extent within the egg case. Below are given the final results:—

—	Complete development.	Failure of development.
Control	193	7
2 minutes' exposure	193	7
4 ,, ,, ...	169	31
6 ,, ,, ...	166	34
9 ,, ,, ...	165	35
12 ,, ,, ...	174	26
15 ,, ,, ...	157	43
20 ,, ,, ...	133	67

Movement and Absence of Movement in 50 Completely Developed Embryos.

—	Living and moving.	Motionless.
Control	45	5
20 minutes' exposure	30	20

The antagonistic influence of x rays upon the development of the ova of ascaris megalocephala has already been described by Perthes,[15] and Bonney and I fully confirm his results both with regard to the main proposition and with regard to the observation that though division of the cells may go on for a certain length of time exposure to x rays in large doses leads to the formation of monstrosities and abortive embryos. Perthes, however, failed to recognise an accelerating influence. Working with the root-tips of plants, Cattley[16] has obtained results similar to those of Bonney and myself both as regards acceleration and as regards retardation of cell division, but he found no evidence of gross pathological change at any time.

Exposure of ova to radium leads to results practically identical with those following exposure to x rays. For the first 24 hours of the experiment division occurs more rapidly in the cells exposed to radium than in the control, but from that time forward division in the control comes to the front, and at the conclusion of the experiment the control contains a larger number of living and moving worms than the sample exposed to radium. Nevertheless, as in the x-ray experiment, the first fully developed and living worms are met with not in the control but in the irradiated specimen. Finally, the specimen exposed to radium shows ova in all stages of development, in some of which the division appears to have proceeded on normal lines previous to its arrest, while in many it has been irregular, as shown by abnormality of the number of cells to which division has given rise, and a wide irregularity in size of the daughter cells. (Fig. 14.)

As might be expected, exposure of ova to uranium or thorium leads to less marked results than exposure to x rays

[14] Lazarus-Barlow and Bonney: Archives of the Middlesex Hospital, vol. xv., 1909, Eighth Cancer Report, p. 147.

[15] Wiener klinische Wochenschrift, 1903, pp. 668 and 715.

[16] Journal of Pathology and Bacteriology, vol. xiii., 1909, p. 380.

or radium. In particular there is no evidence of the production of monstrosities, nor is there any recognisable difference in the number of ova that arrive at the formation of living worms. On the other hand, acceleration of division in the early stages and retardation in the later are shown with clearness. The following experiment illustrates these points:—

Experiment showing the Influence of Exposure to Thoria or Uranium Oxide upon Cell Division in the Ova of Ascaris Megalocephala.

29/9/08. All ova in 1-cell stage.

30/9/08.	1-cell stage.	2-cell stage.
Control	157	43
Thoria-exposed	136	64
Uranium-exposed	141	59

1/10/08.	1-cell stage.	2-cell stage.	4-cell stage (and over).
Control	0	17	183
Thoria-exposed	4	21	175
Uranium-exposed	3	10	187

2/10/08. Control. All cells in morula stage.

Thoria-exposed. } All cells in morula stage, but the morula
Uranium-exposed. } appears to be composed of fewer cells than in the control.

3/10/08 to 7/10/08. No perceptible changes in any of the specimens.

8/10/08.	Living embryos.	Incomplete embryos.
Control	115	85
Thoria-exposed	42	158
Uranium-exposed	81	119

11/10/08. All specimens consisted of fully-developed living worms.

Examination into the effect upon cell division of exposure of the ova to other substances (a layer of air intervening) is being carried out at the present time in my laboratory by Somerville Hastings and myself. In a preliminary communication[17] we record the results of experiments with materials of importance in connexion with the subject now under discussion. Thus we have examined the effect of exposing ova to various extracts of tissues having skotographic power, and find marked evidence that the rate of development is influenced by the character of the extract in proximity with which they are dividing. Thus the proximity of a protein-free watery extract of sheep's liver or of ovary of herring causes the ova to pass from the one-cell stage to the two-cell stage more slowly than in the control—i.e., retards development—while a similar extract of the testis of the herring accelerates division. Quite apart from the results to which this remarkable observation may possibly give rise in the future, it is clear that the effects of these extracts, acting on the cell, as they do, through the egg case, and producing results similar to those which follow exposure of the ova to the action of x rays and radio-active substances in general, suggest that there resides in animal tissues a force unrecognised hitherto and resembling radio-activity in certain respects.

I have now laid before you the results which I have so far obtained in this research. I have not hesitated to occupy the greater part of the time at my disposal in this way, partly because in cancer research there is at present more need for practical experiment than for theoretical disquisition, and partly because the Croonian lectures afford a rare opportunity for presenting the results of a prolonged research in an orderly manner. It is right, however, that in the time remaining to me I should summarise my results, and, as far as may be, consider established facts in connexion with carcinoma under the light that they afford.

The original question with which I started—viz., Do the physical agents which are commonly supposed to give rise to cancer (clay pipes, soot, &c.), and do samples of carcinomatous material afford evidence of the possession of radio-active properties?—is not conclusively answered. In certain respects they behave like the radio-active materials of the chemist or physicist, but in no single instance do they respond to all the criteria of recognised radio-activity. Thus I have shown that many of the substances affect a photographic plate in the dark, but, on the other hand, few can act on the plate if a screen be interposed; and even in those instances in which a positive result is obtained under these circumstances it is doubtful whether the interposed celloidin screen is fairly so-called. Nevertheless, it is doubtful whether the power of acting through a screen is a necessary criterion of radio-activity, since I have shown that albuminous compounds of recognised radio-active substances may possess a power of acting on the photographic plate which will not traverse an extremely thin screen, and, indeed, may be devoid of photographic powers altogether. In the latter respect they are comparable with clay pipe, inasmuch as neither type of substance acts on a photographic plate and both accelerate the discharge of an electroscope; in the same category comes carcinoma material which has been extracted with acetone or with water and subsequently with ether. Possibly, too, some specimens of spleen and of the inorganic constituents of bone are to be reckoned in the same class.

Even a greater difficulty arises in connexion with those substances which I have found to retard electroscopic leak. Such a property is entirely repugnant to present ideas of radio-activity. If I am correct in asserting that evidence of retardation can be obtained by the use of recognised radio-active substances (as in the case of aluminium discs, which have been placed in proximity to uranium, thorium, or pitch-blende) this difficulty is overcome. It may be that the dual accelerative and retarding influence which I have found all forms of radio-activity to exert upon the development of the ova of ascaris megalocephala will help in determining this important question. Already this line of research is indicating that certain animal extracts having skotographic powers resembling those of radio-active substances up to a certain point are able to influence the rate of development of animal cells when acting on them from a distance and through the screen of their own egg-case. It is not impossible that we shall find that the laws of radio-activity as determined by the physicist require some modification when adopted into biology owing to the presence of the protein molecule, just as the laws of filtration and osmosis have required adjusting to the special circumstances of the case. I showed some years ago that the presence of even a minute trace of protein profoundly modifies the rate of osmosis,[18] and I showed in the last lecture that combination of a radio-active element with a protein molecule profoundly modifies the rate with which it induces electroscopic leak and its photographic powers.

Below are given in tabular form the chief photographic and electroscopic results hitherto obtained.

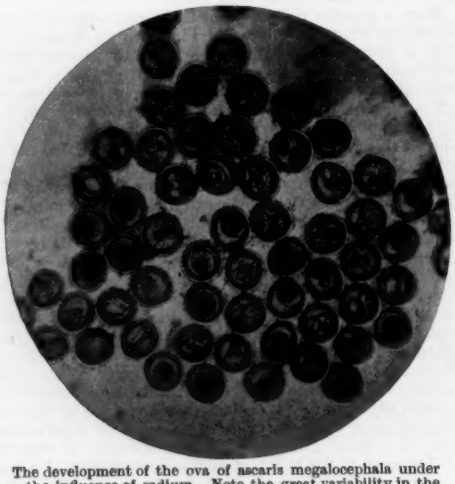
Type of properties. The substance acts on a photographic plate directly and *also* through a screen. It *accelerates* electroscopic leak whether the charge on the gold leaves be + or −.	
Recognised radio-active substances.	Radium, uranium, thorium, uranium albuminate some weeks after its preparation.
Other substances of research.	No member found.
Type of properties. The substance acts on a photographic plate directly but *not* through a screen. *Accelerates* electroscopic leak whether the charge on the gold leaves be + or −.	
Recognised radio-active substances.	Uranium albuminate directly after its preparation, thorium albuminate weeks after its preparation, doubtfully, directly after preparation.
Other substances of research.	Carcinoma material after extraction with either water or ether but not both.
Type of properties. The substance acts on a photographic plate directly and *also* through a screen. It *retards* electroscopic leak whether the charge on the gold leaves be + or −.	
Recognised radio-active substances.	No member of the group found.
Other substances of research.	Solid mass of hepatic material.
Type of properties. The substance acts on a photographic plate directly, but *not* through, a screen. It *retards* electroscopic leak whether the charge on the gold leaves be + or −.	
Recognised radio-active substances.	No member of the group found.
Other substances of research.	Carcinoma extract, watery or ethereal, non-malignant liver before and after extraction with acetone, acetone extract of liver, cholesterin gall-stone.
Type of properties. The substance has *no* photographic action whatever. It *accelerates* electroscopic leak whether the charge on the leaves be + or −.	
Recognised radio-active substance.	Thorium (?) and certain specimens of uranium albuminates directly after preparation.
Other substances of research.	Carcinoma material after extraction with acetone, clay pipe, possibly some others.
Type of properties. The substance has *no* photographic action whatever. It *retards* electroscopic leak whether the charge on the leaves be + or −.	
Substance prepared by means of recognised radio-active substance.	Aluminium discs after proximity to uranium or thorium.
Other substances of research.	Aluminium disc after proximity to cholesterin gall-stone, paraffin wax, liver substance after extraction with acetone.

[17] Archives of the Middlesex Hospital, vol. xv., 1909, Eighth Cancer Report, p. 200.

[18] Journal of Physiology, vol. xix., 1895, p. 140.

Leaving now the question whether the substances commonly supposed to be causally related to cancer and certain animal tissues, including carcinomatous material, are radio-active as unanswered, and, in our present state of knowledge, as unanswerable, we may pass to consider recognised facts in connexion with carcinoma as a disease in the light of the experimental evidence I have adduced. It is impossible for me to traverse the whole field, partly from lack of time, partly because I should thereby introduce too much contentious matter. I shall therefore confine myself to a few salient points, offering you something in the nature of an impressionist picture.

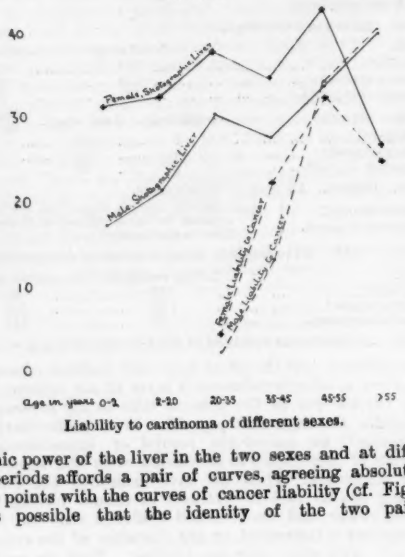
FIG. 14.



The development of the ova of ascaris megalocephala under the influence of radium. Note the great variability in the stages of division, all stages from a single undivided cell to a complete worm being recognisable.

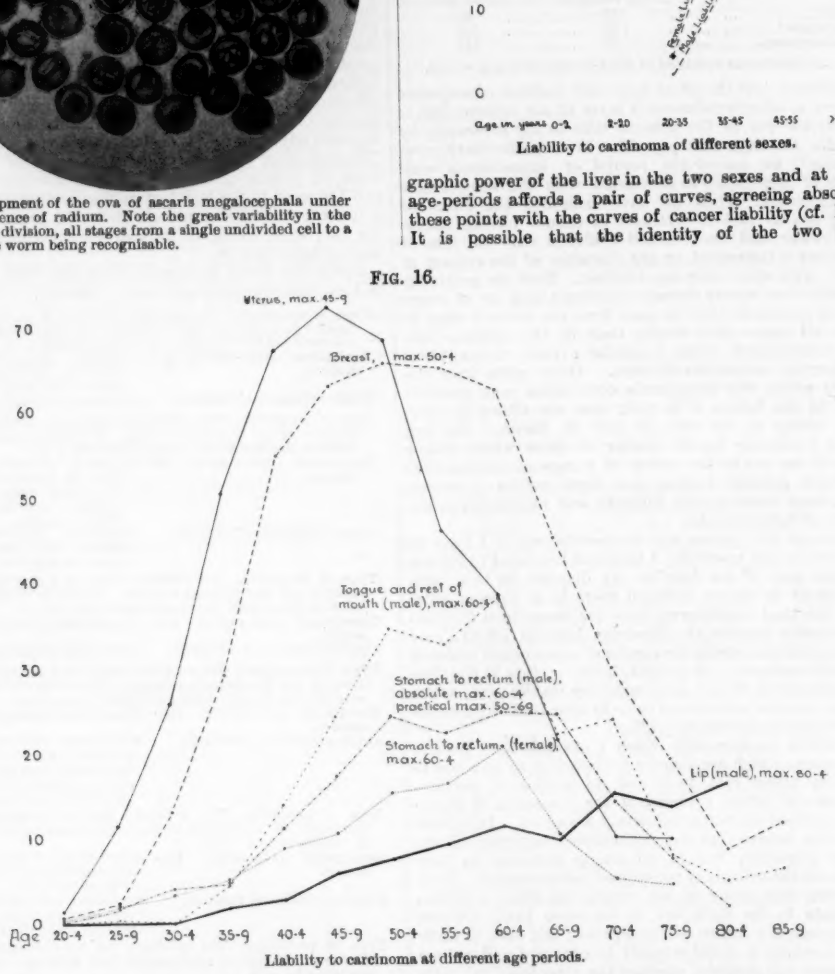
One of the most certain features of carcinoma (at all events as we meet with it in this country) is that it occurs more commonly in women than in men, and that the case-incidence, corrected by the number of persons of the sex living at various ages, in both sexes runs on parallel ascending lines up to the age of about 55 years, while after that age the lines diverge, liability to the disease continuing to increase in males, but undergoing a sharp diminution in females. It is certainly remarkable that the degree of skotographic power of the liver in the two sexes and at different age-periods affords a pair of curves, agreeing absolutely in these points with the curves of cancer liability (cf. Fig. 15). It is possible that the identity of the two pairs of curves is a coincidence, and that both cancerous and skotographic conditions may depend upon some common underlying cause—e.g., senility. Thus, curves made for the incidence of fibrotic kidney and greyness of hair would probably run parallel courses, but no one would infer that the one bears a causal relation to the other. But when one finds that the liability of liver, kidney,

FIG. 15.



Liability to carcinoma of different sexes.

FIG. 16.



Liability to carcinoma at different age periods.

lung, and spleen to primary and, in the main, to secondary growths varies directly with their skotographic power, that the liability of gall-bladder, urinary bladder, and kidney to carcinoma varies directly with the skotographic value of the calculi by which severally they are affected, that carcinomatous material possesses this skotographic power, practically without exception, and that the normal skotographic power of a tissue is modified by the presence in it of a carcinomatous mass, the idea that the two are in some way interdependent is strengthened. And when one further finds that these tissues or their extracts are capable of influencing the rate of division of animal cells, the suggestion that in them lies the key of a disease which is, after all, nothing more than a disorderly overgrowth of a particular variety of cell becomes alluring. Nor is the fact that certain of the extracts have been found to possess accelerative, while others possess retarding, powers on development a difficulty, for it is clear that for the occurrence of carcinoma it is as necessary for the subjacent tissues to undergo a diminution of their normal resisting powers to the encroachment of the epithelial cells as for these latter to undergo an increase in their normal rate of reproduction.

This brings us to the question of metastases. I have long felt that the metastases in carcinoma are not regarded in their proper light. Stripped of non-essentials, the occurrence of a metastasis simply means that a cell which is capable of growth is lodged in a situation at which it is not killed. That is to say, the tissue into which a carcinomatous cell is carried by embolism, tissue permeation, or other means plays as considerable a part in determining the occurrence or non-occurrence of a metastasis as the transported carcinoma cell. This is shown by the great variations in regard to metastasis met with even in carcinoma of a single site. We cannot believe that a fundamental difference obtains between the cells of one carcinoma of the cervix uteri and those of another, either as regard their "malignancy" or their liability to transport to the lymphatic glands, liver, &c. And yet, as a reference to statistics collected at the Middlesex Hospital will show, more than half of the necropsies on cases dying from carcinoma of the cervix reveal an entire absence of metastasis.[19] The only reasonable explanation of this fact is that carcinoma cells are disseminated through the body in all cases, but in half of them they are destroyed at the seat of their lodgment.

In what the difference between a tissue which allows a transported carcinoma cell to grow and multiply and a tissue which destroys it consists, it is impossible to say, but the different properties of tissue-extracts upon the division of the ova of ascaris megalocephala are such that in them may perhaps lie the solution of the question. Nevertheless, the fact that the existence of carcinoma in a body affects the skotographic power of the liver of the patient, even though the liver itself be devoid of metastasis, indicates that an influence is exerted by the carcinoma, or the initial cause of the carcinoma, upon distant parts. And in this connexion one may ask whether it is not possible that those rare cases may be thus explained in which death in carcinoma cannot be attributed with fairness either to the mass of growth, septic absorption, mechanical interference with vital parts, or other similar cause. One of the most noteworthy points in connexion with carcinoma is that a mass will kill, being carcinoma, which would probably not kill if, *ceteris paribus*, it were inflammatory. It is only necessary to compare the certain death from so small a mass of disease as is often a carcinoma of the body of the uterus, with the relatively good prognosis of a far more extensive tuberculosis, actinomycosis, or tertiary syphilitic condition.

If the general liability to carcinoma in males and females be split up into its component parts and the liability to carcinoma at different sites be considered individually, certain interesting points are disclosed. This has been done for 6421 cases of cancer at the Middlesex Hospital of which details as to age are available. The cases are distributed as follows: Uterus, 2205 cases; breast, 2126 cases; alimentary tract from stomach to rectum, 470 female and 586 male cases; tongue and rest of mouth, 783 cases (male); lip, 251 cases (male). The total number of cases of each kind in each quinquennial age-period has been corrected for the number of persons (male or female as the case may be) surviving at that age-period from 100,000 persons born. The curves thus formed are given in Fig. 16.

The most striking point in the curves is that whereas all of them show a rising liability with increasing age, this increasing liability only persists to the end of life in the case of cancer of the lip. In every other instance a maximum is reached, after which the liability to cancer diminishes with more or less suddenness. And further, the maximum liability to cancer of a special organ does not occur at the same age as the maximum liability to cancer of another organ, nor are the ascents and descents of the different curves equally rapid or high in all cases.

There is thus a great contrast between cancer of the lip and cancer of the uterus, for example, so far as the liability of individuals to the two types of disease is concerned. This difference may clearly depend upon either a difference in the incidence of the cause of cancer or upon a difference in the tissue upon which the cause is acting. So far as a difference in the tissue is concerned, there is no doubt that the maximal liability to cancer of the uterus occurs about the menopause and that it diminishes with great rapidity immediately after. But the uterine, and particularly the cervical, changes following the menopause are amongst the least marked of climacteric changes, and in any case are minute compared with the uterine modification following a pregnancy. If, however, we consider the question from the point of view of a difference in the incidence of the exciting cause of the disease the matter becomes simpler.

The cervix uteri is particularly suitable for an inquiry into the etiology of carcinoma. It is a limited region; it is in the majority of cases affected by the simplest form of carcinoma, the squamous cell variety; it is placed out of reach of an infinitude of accidents and forces which act upon other parts covered with squamous epithelium; and it is liable to three conditions, two of which—namely, bathing with menstrual blood and bathing with seminal fluid—are peculiar to it, while the third, laceration during childbirth, is merely a trauma more or less resembling traumata in other regions, and, once occasioned, persists throughout life. At the same time, as it is more than usually protected from outside influences, it is one of the commonest, if not actually the commonest seat of carcinoma. Of these three conditions, the two that are peculiar to the cervix are those which attract most attention when considered in relation to the age for the maximum liability to carcinoma of the cervix, partly because traumata occur in other regions, partly because a period of many years usually elapses between the last parturition and the age of maximum liability. And considering menstrual blood and seminal fluid as possibly containing the essential cause of carcinoma of the cervix, menstrual blood must be put on one side, if only for the reason that if it were the cause one would expect that vagina and vulva and body of the uterus would not show so marked an inferiority in liability to carcinoma as they undoubtedly do. This leaves the seminal fluid, and it is a remarkable fact in this connexion that the spermatozoon is the most potent instigator of cell division known when it acts upon a specific cell, the ovum, and that an extract of the testis of the herring (which consists almost entirely of spermatozoa) favours the division of the cells of the ova of ascaris megalocephala to an extraordinary extent, and at the same time possesses marked skotographic powers (Fig. 17).[20]

In the case of the breast, it appears to me that the observation of MacCormac that various bacteria possess skotographic powers is of great importance in conjunction with the fact that a greater or less degree of chronic mastitis is so commonly met with in mammary carcinoma. From this point of view mammary carcinoma may be brought into line with carcinomata arising on old cicatrices and long-standing ulcers, whether these be simple or lupoid. It is, indeed, remarkable that the only varieties of bacteria which have been found to possess marked skotographic powers are those which pre-eminently affect man, the pyogenetic staphylococci, B. tuberculosis, B. diphtheriæ, while man amongst the animal kingdom is so much more commonly affected by carcinoma that it may be termed a pre-eminently human disease. When it is remembered that bacteria—especially pyogenetic and tuberculous bacteria—may remain latent for

[19] Andriezen and Leitch: Archives of the Middlesex Hospital, Fifth Cancer Report, 1906. MacCormac: Ibid., Eighth Cancer Report, 1909.

[20] The freedom of lower animals from carcinoma cervicis, I suggest, is explained by their entirely different sexual habits. Its occurrence in an undoubted virgin would be explicable on the lines sketched in the next paragraph.

years; when it is remembered that the skotographic action, if not of bacteria at least of other animal substances, may persist for a period, certainly of months and probably of years, the question arises whether we shall not find the essential cause of carcinoma affecting mamma, cicatrices, old ulcers, directly connected with the bacteria underlying the primary chronic inflammatory condition. If this be so, if the bacteria introduced into the breast, possibly during some lactation period, carry with them by virtue of their skotographic power the cause of a carcinoma which develops years later, we should expect the feebly skotographic bacteria to induce carcinoma later in the individual's life than the far more powerful spermatozoa, we should expect the period of maximal liability to a carcinoma of bacterial origin to be spread over a larger range of years than one of spermatozoal origin, we should expect a later onset of diminution in liability with a carcinoma of bacterial origin than with one of spermatozoal origin, but in both cases we should expect the liability to cancer to diminish in later life. In a word, we should expect to find carcinoma of the breast and carcinoma of the cervix showing just those differences of incidence which they actually manifest.

But if, in the case of the uterus, it is difficult to associate the occurrence of carcinoma with peculiarities on the part of the tissue itself, this is even more difficult in the case of carcinoma affecting that part of the alimentary tract lying between stomach and rectum. A glance at the curves of liability to cancer in these regions drawn up for males and for females shows that in males the liability is not only greater but also that it reaches a maximum some ten years earlier than in females and persists at that maximum for five years longer. We cannot consider that there is so striking a difference between male and female alimentary tissues as this would indicate in the absence of definite evidence on the point. It is easier to imagine that some factor leading to increased division of epithelial cells is more potent in males than in females during the age-period 50 to 69. It would serve no good purpose to discuss here what that factor may be, but it may be pointed out that Sir J. J. Thomson has shown that certain food-stuffs, notably wheaten flour, may be radio-active, while I have shown above that many animal substances have properties which may be radio-active, that both definitely recognised radio-active substances and extracts of animal tissues are able to accelerate cell-division in the ova of ascaris, and that, partly as a result of the greater degree to which they are occupied in arduous labour, men consume more food than women.

I have left consideration of the curves obtained for carcinoma of the lip and of the tongue and other parts of the mouth to the last because of their great dissimilarity, in spite of the similarity of the tissues concerned and of the identity of most of the conditions to which those tissues are subjected. This dissimilarity of the curves of liability to carcinoma, and particularly the fact that the liability to carcinoma of the lip undergoes no diminution in old age such as is observed in the case of carcinoma in all other sites that we have examined, is strong evidence that some fundamentally different condition obtains in the two situations. The persistency with which the old man clings to his pipe, holding it between his lips whether actually smoking or not, whether awake or dozing, as he sits in the sun or by the fireside, is as characteristic of the ages above 70 as is the toothless condition which commences to set in about 65. On the assumption that the pipe in some way is directly related to carcinoma of the lip while the teeth are in some way directly related to carcinoma of the tongue and other parts of the mouth, the curves of liability to this disease in the two situations should be exactly as we find them to be.

It may be urged that the observations I have brought forward are nothing more than evidences of that "chronic irritation" which since the time of Virchow has been held to play an important part in the causation of carcinoma. To this my answer must be that the term "chronic irritation" is meaningless and only indicates that some common factor exists in a variety of conditions that differ otherwise to the greatest extent. Is it not possible that the common factor, which must be capable of stimulating the growth of certain cells while it depresses the growth of others, which must reside in substances of the widest diversity, which must act with varying intensities in different cases though always with comparative slowness, the natural action of which must be progressive so long as it persists, should be radio-activity? The x rays cause carcinoma, they stimulate (like other radio-active substances) the growth of cells, and again they retard the growth of cells; carcinomatous material, non-carcinomatous material, extracts of animal tissues, various substances usually regarded as causally related to carcinoma, possess properties resembling those of recognised radio-active substances to a greater or less degree when considered from the physicist's point of view, and there is evidence that they possess powers of stimulating or depressing the division of animal cells. Such similarities are at least suggestive.

At the same time as radio-activity, using that term to cover the properties of other than *recognised* radio-active substances for the moment, would serve to explain a large number of the salient features of carcinoma as a disease, it would fall in line with other facts that have been made known more recently, and often afford a common ground for views that appear, at first sight, to be diametrically opposed. It would fall in line with the observations of Farmer, Walker, and Moore on the frequent occurrence of heterotypical and irregular mitoses in malignant new growths, for all observations go to show that the ova of ascaris megalocephala divide with great irregularity when they are exposed to recognised radio-activity, and the same is true when they are exposed to the influence of any of the watery extracts of animal substances that have been mentioned above. It would fall in line with the observations that there is a deficient secretion of pepsin and trypsin in carcinoma, for Colwell and others have shown that the activity of these enzymes is largely diminished when they are exposed to radio-active influence.[21] It would fall in line with the observation that the ereptic power of the tissues in carcinoma cases is not diminished more than in other chronic diseases accompanied by wasting (Colwell [22]), for exposure to radio-activity does not affect the ereptic power of a tissue-extract in the slightest degree. It would fall in line with the fact that certain varieties of carcinoma, notably those which are superficial, are curable by radio-activity, for, as is shown by the cases of diphtheria, typhoid fever, tetanus, anthrax, rabies, and other microbic diseases, the agent producing the disease is prepotent in elaborating the remedy. It would fall in line with the fact that carcinoma is primarily a disease in which a definite variety of cell—the epithelial—is concerned, for there is evidence that radio-activity has selective powers—e.g., in its action upon the specific cells of the testicle and upon the spleen. It would fall into line with the remarkable observations of Ehrlich and Apolant and of Haaland, that in mice transplantation of one type of tumour may lead, as they believe, to the origination of another type from the tissues of the host, for the cells of a carcinomatous mass are endowed with properties resembling those of recognised radio-active substances in many respects. It would fall into line with the observations of Bonney made in my laboratory and enunciated in his Hunterian lectures before the Royal College of Surgeons of England last year, that the onset of carcinoma in any part is preceded by local histological changes of a special kind but belonging to the "inflammation" phenomena.

On the other hand, it would not be opposed to a belief in "cancer houses and localities," for there is no reason why the soils of districts or the materials of which houses are built should not differ in the degree to which they are radio-active, nor why the local radio-activity should not be in certain instances so considerable that cancer arises in successive inhabitants time after time. In a sense, the electrical department of every hospital is a "cancer house." It would not be opposed either to an infective or non-infective, a contagious or non-contagious, an animal or vegetable parasitic, a parasitic or non-parasitic, a hereditary or non-hereditary view of cancer, for it would only be concerned with the question whether the inculpated agent is radio-active or not. So far as certain bacteria possessed the properties we are considering, the carcinoma associated with them might be regarded as bacterial and infective, but the bacterial and infective properties would be accidental and non-essential. So far as the agent which leads to hereditary transmission was provided with "radio-active" properties cancer would be hereditary, but the inheritance of cancer would be accidental and non-essential. Similarly it would not be

[21] Archives of the Middlesex Hospital, vol. xiii., 1908, Seventh Cancer Report, p. 94.
[22] Ibid., vol. xv., 1909, Eighth Cancer Report, p. 96.

opposed to Cohnheim's theory of embryonic rests, to Virchow's theory of mechanical irritation, to von Hansemann's theory of anaplasia, to Ribbert's theory of tissue-tension, to Adami's theory of habit of growth, for it would constitute the underlying force required by each.

There remains the question whether by applying radio-activity we are able to produce carcinoma. To this question I can only reply that numerous experiments have hitherto resulted in failure. I have exposed rats and mice to the action of x rays, or to uranium, or to thorium for months; I have kept a glass tube containing radium in the abdominal cavity of a rabbit for months; I have exposed the ears of rabbits to x rays for prolonged periods and under different circumstances, but so far the only cases of carcinoma resulting from exposure to radio-activity are those which have occurred in the human subject. Yet the experiments I have mentioned have not been without importance, for, as Rowntree[23] has shown, the changes in the rat's tail, and even more those in the rabbit's ear resemble those in human x ray dermatitis, while there is in certain places a well-marked overgrowth of epithelial cells. In the case of the rabbit's ear, indeed, he finds that the epithelium on the under or indirectly exposed surface shows an irregular arrangement of the hypertrophied epithelial cells which appears to be on the border line between non-malignancy and malignancy. When we can determine that that border line shall be crossed one of the greatest steps towards a discovery of the cure for carcinoma will have been made.

Mr. President, I have finished. No one is more conscious than I of the deficiencies of these lectures. I can only plead for your leniency on the ground that the line of research is, to the best of my belief, new, and that it has not proved unprofitable. I am of the opinion that great developments may be expected, not only in respect of cancer, but also in respect of physiological and other pathological conditions if research on these lines be extended.

GASTRO-INTESTINAL CRISES FROM EFFUSION INTO THE BOWEL WALL.[1]

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THE occurrence of unexplained hæmorrhage is more common in childhood than in adult life. Even in the earliest days of life this tendency is present. The site of the hæmorrhage is an important one in determining both the nature of the symptoms and, in many cases, the gravity of the affection. Amongst the different parts of the body which may be affected the bowel wall is of considerable importance because of the grave and alarming symptoms which may develop and the difficulties in diagnosis and treatment which may confront the physician. A condition of acute abdominal disease is frequently present, and the problem as to whether operative interference is or is not called for would appear to have taxed the diagnostic powers of many. Not infrequently mistakes in diagnosis have been made, as in other forms of acute abdominal disease. In criticising some of the recorded cases it is hoped that the writer of this paper will not be regarded as assuming a superior position. Such would be untenable, for he has apparently made more mistakes in connexion with this special affection than anyone else. This is his only claim to speak on the subject.

This special type of disease is most frequently associated with the name of Henoch, who was the first to describe it clinically. Henoch's purpura is a variety of the hæmorrhagic diathesis characterised by attacks of severe abdominal pain, vomiting, and the passage of blood and mucus by the bowel. It is only because of the abdominal symptoms, on which he laid special emphasis, that it is to be distinguished from other forms of purpura hæmorrhagica. Osler[2] has described a number of such cases in a series of articles on the Visceral Manifestations of the Erythema Group of Skin Diseases. He associates together both serous and sanguineous effusions on the ground that they manifestly proceed from the same cause, as they are found alternating in the same individual during the course of the illness. Other writers have described similar attacks as being due to angio-neurotic œdema, there being no evidence of hæmorrhage in any part of the body, but definite attacks of fleeting œdema having occurred. Clinically the abdominal symptoms may be identical, but it may often be possible to make a differential diagnosis from the previous history or from the evidences of disease in other parts of the body.

The following cases illustrate some of the clinical and post-mortem aspects of this condition:—

CASE 1.—A male child, three months old, passed a blood-stained motion four days before admission, and since then the bowels had not acted. At the beginning of the illness he was sick, and vomiting had continued quite irrespective of food. He had been crying as if in pain. The abdomen had been increasing in size. On admission the child was collapsed and looked moribund. The abdomen was much distended. There were no petechial hæmorrhages. An enema was followed by the discharge of some blood and mucus. Vomiting of a brown-coloured fluid occurred at intervals. A second enema was followed by the passage of some fæcal matter, blood, and mucus. The child seemed too collapsed for any treatment save stimulation, and in spite of this he died a few hours after admission. At the necropsy the only lesion found in the abdomen was in the lower part of the small intestine. The last inch of the ileum was healthy in colour, but above that there was an area of bowel wall thickened and dark-coloured for about two inches. Above this again the bowel was greatly distended, the walls were thin, and there were no evidences of congestion or hæmorrhage. The colon was collapsed and empty. On opening the bowel the dark-coloured part showed a similar discolouration of the mucous surface, and some purpuric spots in the adjoining parts. There was no definite obstruction in any part of the bowel, and no hæmorrhage elsewhere. The mesenteric vessels appeared healthy.

CASE 2 (Mr. H. Burrow's case).[3]—A boy, aged 11 years, was admitted to hospital with a history of violent pain in the abdomen, vomiting which had become stercoraceous, and the passage of blood from the bowel. The abdomen was nearly motionless and the muscles were rigid, especially in the lower part, and there was general tenderness on palpation. There was no distension, or tumour, or tenesmus. Peritonitis was diagnosed. The abdomen was opened and no evidence of gross disease was found. The greater part of the small intestine was empty, but a portion a few inches from the ileo-cæcal valve was found to be congested. The bowel here showed several small petechial hæmorrhages and some irregular patches of congestion from which the blood could be expressed. On the following day a careful search was made for other petechiæ and some small purpuric spots were found on the backs of the elbows, on the buttocks, and on each leg. Later a general eruption of purpura ensued and a diagnosis of Henoch's purpura was made. This was fully confirmed by subsequent attacks of acute abdominal pain with melæna and purpuric eruptions. Recovery eventually took place.

CASE 3 (Dr. Theodore Fisher's case).[4]—A boy, aged four years, was admitted suffering from severe abdominal pain and vomiting. The possibility of intussusception was considered. Under chloroform nothing abnormal was detected. The acute symptoms soon subsided and he left the hospital apparently quite well. Five weeks later the symptoms returned, the pain being severe and the abdomen tender but not distended. He died collapsed at the end of three days. There had been no melæna. At the necropsy the mucous membrane of the whole length of the small intestine, of the cæcum, and of the ascending colon was intensely engorged with blood, and the intestinal wall was about three times its normal thickness owing to hæmorrhage into its coats. There was no ulceration. The upper part of the small intestine contained a considerable quantity of blood in clots, and in the ileum and the ascending colon blood was present in a more fluid state. There was no thrombosis or embolism of the mesenteric vessels.

Into the pathology of purpura hæmorrhagica and angio-neurotic œdema we need not enter here, but the pathological changes which have been found in the bowel wall during life and after death afford an explanation of the clinical symptoms. Hæmorrhage may take place into the mucous layer, the submucous layer, the muscular layer, or the peritoneal coat. It is probably only when considerable effusion has taken place into the tissues of the bowel wall generally that severe symptoms are produced. The hæmorrhage, if of sufficient extent, produces paralysis in the part of the bowel affected. On examination the bowel wall will be found to be deeply congested or hæmorrhagic in appearance. It is thickened and has a tough leathery feel. Scattered purpuric spots may be found on the peritoneal coat or in the mucous layer of the bowel. At a necropsy one may find many superficial ulcers on the internal surface due to sloughing at the site of these hæmorrhages. In other cases there may be extensive ulceration of the bowel due to profuse hæmorrhage into the wall and necrosis of large areas of the mucous and submucous tissues.

The clinical symptoms in connexion with effusion into the bowel wall are vomiting, pain, and the passage of blood and mucus. Constipation is usually present, but in some cases

[23] Archives of the Middlesex Hospital, vol. xiii., p. 182, and vol. xv., p. 192; THE LANCET, March 20th, 1908, p. 821.

[1] A paper read before the Medical Section of the Royal Society of Medicine on June 22nd, 1909.

[2] American Journal of the Medical Sciences, 1895 and 1904. British Journal of Dermatology, vol. xii.

[3] British Journal of Children's Diseases, January, 1904.

[4] Ibid., 1904, p. 96.

diarrhœa of a severe type is a marked symptom. In the milder cases the attacks are short but tend to recur. It is to be noted that hæmorrhage into the lumen of the bowel does not of itself produce any pain, so that the onset of pain at once suggests effusion into the bowel wall. The pain is of the nature of colic and is intermittent. It may be so severe that the patient rolls about in agony or is thrown into a state of opisthotonos. Pressure on the abdomen either with the hand or by lying on the face seems sometimes to afford relief. In the case of infants violent screaming occurs during the attacks of pain. The site of the abdominal pain varies in different cases. Abdominal tenderness is not usually present, but some cases are recorded in which it was a marked feature. Such attacks are acute enough and call for the administration of opiates, but between the spasms of pain the patient's appearance is satisfactory. Another stage is reached when the condition becomes one of intestinal obstruction, partial or complete; the whole aspect of the patient changes, and one recognises the typical appearance of acute abdominal disease. The nature and cause of the pain have been explained in various ways. If, however, one considers the nature of the pain, which is griping, spasmodic, and intermittent, and the usual accompaniment, obstinate constipation, it appears most natural to assume that there is paralysis of the affected part of the bowel with over-action and spasmodic contraction of the bowel wall above. The increased peristalsis is an attempt to overcome what is practically a local obstruction and pain results. A sudden attack of violent abdominal pain may be the first sign of illness, and may simulate very closely the onset of acute intussusception. Vomiting usually comes on at the onset of an abdominal attack or follows soon after. It may become so marked that everything swallowed is promptly rejected. Vomiting of blood may take place and is a valuable aid in the diagnosis as suggesting the hæmorrhagic nature of the abdominal lesion. Blood and mucus are usually passed per anum in hæmorrhagic cases. The amount of blood varies from a mere tingeing of the mucus to six or eight ounces. The patient may be rendered anæmic by the profuse intestinal hæmorrhage. At the same time blood is not necessarily present, even in hæmorrhagic cases, as the effusion may be confined entirely to the wall of the intestine. In cases of pure serous effusion there will not, of course, be any blood passed per anum. The abdomen is usually retracted in the early stages and milder cases, but with the increase of symptoms of obstruction it tends to become distended.

Attacks of intestinal colic, identical in all respects with those accompanied by the passage of blood, but without melæna, are not uncommon. These may be accompanied by œdematous or urticarial swellings in other parts of the body, which are evidence in favour of effusion into the bowel wall. Mr. Alexander Don[5] has recorded the case of a boy, aged 11 years, who was seized with sickness, vomiting, and abdominal pain. There was no melæna, but there was a purpuric rash, and œdematous circumscribed swellings appeared over the back, the thigh and leg, the back of the hand, and the dorsum of the foot. Osler, in discussing the visceral manifestations of the erythema group of skin diseases, says that the colic is probably due to localised œdema of the intestinal wall. Dr. Harrington has had an opportunity of seeing this localised œdema in a case where laparotomy was performed for suspected gall-stones.

CASE 4. (Dr. Harrington's case).[6]—A young woman, aged 26 years, presented symptoms of gall-stones for which laparotomy was performed. The intestines were engorged with blood and so red that a mild peritonitis was at first suspected. There were no hæmorrhagic areas in the intestinal walls, but at a point within a short distance of the ileo-cæcal valve a cylindrical enlargement of the ileum 2½ inches long was seen, entirely surrounding the bowel and increasing its circumference to twice the ordinary size. The swelling was evidently in the bowel wall, elastic to touch, and did not pit upon pressure. No other lesion was found. She had a comfortable convalescence. This patient had had many previous attacks of angio-neurotic œdema affecting the face, hands, and feet, accompanied at times with abdominal pain.

There would appear to be a special site of election for this form of intestinal hæmorrhage—namely, the ileo-cæcal region. Out of 20 cases in this paper in which the site of hæmorrhage was determined either during life or post mortem, the effusion was marked in the ileo-cæcal region in 15 cases. The lower end of the ileum, the cæcum, and more rarely the appendix are the parts affected. It is difficult to explain the special tendency to the effusion in these parts, although the stagnation of the bowel contents about the cæcum may be a cause of local irritation and congestion. The presence of the ileo-cæcal valve may also explain the early development of symptoms of acute obstruction, as effusion and swelling in this narrowed part of the bowel will produce more disturbance than in other parts of the intestine. Certainly the clinical fact remains that in recorded cases a preponderating number show the affection specially marked in this region. It is also a well-known fact that over 70 per cent. of cases of intussusception in infants occur in the ileo-cæcal region. May it not be possible that the sudden effusion of serum or blood in the ileo-cæcal region is often the unsuspected cause of an intussusception? Illustrations of the involvement of the ileo-cæcal region in intestinal effusion are supplied in the cases here recorded. The following two cases show that the vermiform appendix alone may be involved.

CASE 5 (Dr. Jacobson's case).[7]—A woman, aged 37 years, had suffered for three days from severe pains in the right side of the abdomen. When first seen the abdominal pain was very severe and tenderness was marked over the site of the appendix. She complained also of pain in the region of the gall-bladder, and located a third painful point to the right of the umbilicus. On opening the abdomen the bleeding was very profuse. The appendix was five inches long and presented a very red appearance. Later, upon section, it was found to present numerous areas of hæmorrhage into its substance. There was no free bleeding into the cavity of the appendix, which was distended by a mucoid discharge. The hæmorrhage was entirely interstitial. Four days after operation the patient developed a hacking cough and brought up a quantity of bright red blood. This was followed by profuse nasal hæmorrhage, and next day by an outbreak of purpura on the skin. Petechiæ appeared on the left leg above the head of the fibula and on the abdomen, while on the calves numerous ecchymoses were found. At the sites of hypodermic injection free bleeding occurred. There was never any hæmatemesis or melæna. The patient eventually made a good recovery after a somewhat prolonged attack of purpura hæmorrhagica.

For the following case I am indebted to the kindness of Mr. Arthur Edmunds who has not yet published it.

CASE 6 (Mr. Arthur Edmund's case).—A boy, aged three years, was suddenly seized with acute abdominal pain and vomiting while at dinner. For the previous ten days he had had occasional attacks of "stomach ache." The vomiting was repeated six times during the day and blood was passed per anum on three occasions. On admission the same night an indefinite swelling, cylindrical in shape, was felt half way between the umbilicus and ensiform cartilage. Intussusception was diagnosed and the abdomen was opened. No tumour was found, but on examining the cæcal region the appendix was found to be hæmorrhagic and was removed. The boy made a good recovery without further symptoms. On examination of the appendix the wall was found to be swollen and infiltrated with blood, involving the submucous layers, the follicles, and the muscular layers. No other lesion was present.

A diagnosis of intussusception is very readily made in cases of intestinal effusion. The resemblance of the two affections may be so striking that on reading the recorded cases I am still unable to find any one point which will serve to distinguish them. The difficulty is specially marked when the intestinal effusion attacks a healthy child, produces obstructive symptoms, and is not accompanied by any effusion or hæmorrhage in other parts of the body. The following cases illustrate the difficulty in diagnosis between intussusception and effusion into the bowel wall.

CASE 7.—A male infant, aged eight months, was admitted to hospital after three days' illness characterised by vomiting, constipation (complete save for the passage of some blood and mucus), and great thirst. Vomiting had become almost continuous and abdominal distension had been increasing. The abdomen was distended and resonant and nothing abnormal could be detected on palpation, combined with rectal examination. A soap-and-water enema was given without any result save a little blood-stained mucus. Crying as if from pain was present and there was a marked abdominal facies. Another enema was followed by the passage of some fæcal matter, blood, and mucus. The abdomen was opened and some free fluid escaped. The small intestines were distended generally. There was no intussusception or peritonitis, but the last few inches of the small intestine were deeply congested and hæmorrhagic in appearance. Above this area were some smaller patches of hæmorrhage in the bowel wall. The abdomen was closed. The symptoms of obstruction were not relieved and vomiting again recurred. A very small amount of fæcal matter was passed. The child sank gradually and died two days later. The necropsy revealed a dark, almost black, mass in the right iliac region, which proved to be the cæcum with its walls greatly thickened by an effusion of blood. The lumen was almost entirely occluded. The mucous surface of the cæcum was of a uniform deep purple colour, and a similar appearance was present in patches in the first six inches of the colon. Here the hæmorrhages were of a purpuric character.

CASE 8.—A boy, aged five years, was seized with severe abdominal pain and vomiting, which continued intermittently for four days and then ceased. Two days later the same symptoms recurred with greater severity and persistence. The bowels had acted irregularly until the day before admission, when the motions were at first blood-stained, and later only pure blood in large amount was passed. The boy looked ill

[5] Practitioner, June, 1908.
[6] Boston Medical and Surgical Journal, 1905, vol. cliii.
[7] New York Medical Record, 1903, vol. i.

and was suffering from almost constant attacks of abdominal pain in which he rolled about. The vomiting had passed off entirely. The abdomen was extremely distended and resistant so that an examination was impossible without an anæsthetic. Under chloroform nothing further was discovered. The rectum was empty save for some blood-stained fluid. No fæcal matter had been passed for some days. A diagnosis of intestinal obstruction, probably from intussusception, was made and the abdomen was opened. On going over the small intestine a part of the bowel about five inches long was found which was dark in colour, evidently from extravasated blood, and with thickened walls. Separated about half an inch from this was a circular band of red colour, evidently a more recent hæmorrhage into the bowel wall. The dark, thickened portion of the bowel felt exactly like an intussusception which had been reduced, and it was thought at the time that this reduction had taken place during the manipulation. During the night following the operation the patient complained at intervals of abdominal pain, but it seemed less severe. The bowels acted three times, the motions being loose and offensive. The further course of the case was that of a severe attack of Henoch's purpura, with profuse melæna and hæmorrhagic nephritis, from which he eventually made a good recovery.

CASE 9 (Mr. Greig's case).[8]—A boy, aged nine years, had an attack of vomiting and diarrhœa, accompanied by pains in the legs. Some blood and mucus were noticed in the motions. A few days later he was suffering from severe abdominal pain, with vomiting and diarrhœa, blood being passed per rectum and tenesmus being present. A few purpuric spots were present on the legs. Intussusception was diagnosed. Under chloroform a small, firm, resistant tumour was felt in the right iliac region, below and to the right of the umbilicus, freely moveable, and slipping about on manipulation. On opening the abdomen, a tumour was easily delivered, and was found to be due to a great congestion of the lower end of the ileum, which projected as a distinct collar into the cæcum. There was no obliteration of the lumen, for the finger could easily be entered through it by inverting the bowel. On the following day the left side of the face was much swollen and the left eye also closed, and later the swelling became hæmorrhagic. Purpuric spots also appeared on the body generally. He made a good recovery, and the abdominal wound healed well.

CASE 10 (Dr. G. F. Still's case).[9]—Baby of eight months. Tender swelling about the lower end of the right femur and some scorbutic swelling of the gums. Passing blood and mucus frequently from the bowel. Had vomited twice on the day when first seen. Abdomen flaccid and hollow. In the direction of the transverse colon was an elongated sausage-like tumour, firm, and seeming to vary in hardness at intervals during palpation. "Had there been no scurvy I think no one would have doubted there was an intussusception." Vomiting continued, but the bowels were open. Fluid injection failed to reduce the swelling. Operation postponed as child's general condition seemed desperate. Under antiscorbutic treatment child improved and tumour gradually disappeared. "I suppose there can be no doubt that in this case there was a mass of blood-clot surrounding the bowel, perhaps in the wall of the bowel."

CASE 11 (Dr. J. Porter Parkinson's case [10]).—Male child, aged five years, admitted with history of four days' illness characterised by severe abdominal pain, vomiting, and melæna. Trunk covered with measly non-purpuric rash. Motions offensive with blood and mucus. On the following day vomiting, blood and mucus passed but no proper stool, and great abdominal distension. Intussusception suspected and abdomen opened. No intussusception found but great distension of the colon, congestion of the descending part, and a few scattered subperitoneal hæmorrhages. Some evidences of recent peritonitis. Vomiting continued, only flatus passed per rectum, and a hæmorrhagic rash appeared over the body. Death on second day after operation. At the necropsy general peritonitis with matting of the intestines. On small intestine 13 extravasations of blood scattered widely, about the size of peas, and projecting on both outer and inner surfaces of the bowel. About a foot from the ileo-cæcal valve a collection of much larger hæmorrhages. Distension of small intestine and of large as far as the splenic flexure. At the latter part it was dark-coloured from a diffuse hæmorrhage into the wall of the bowel and much thickened. About the middle of this part gut definitely constricted and beyond it was collapsed and empty. No intussusception present. Many recent hæmorrhagic infarcts in the lungs.

In a recent paper Mr. Hugh Lett lays stress on the presence of a tumour as distinguishing intussusception from this affection. But even a tumour closely simulating invaginated bowel may be present, as in Mr. Greig's and Dr. Still's cases. Tenesmus, opisthotonos, and all the rarer signs of intussusception may be present in cases of hæmorrhage into the bowel wall, so that at present we do not seem to possess any reliable means of distinguishing the two affections. They present themselves as cases of intestinal obstruction, and each one must be considered in the light of all the symptoms present. Some surgeons say the indication clearly is to open the abdomen and settle by inspection. This is probably the best course to pursue in cases where a differential diagnosis is otherwise impossible, where the signs of obstruction are urgent, and where there is no evidence of a general hæmorrhagic tendency. In the latter case it is not advisable to operate owing to the risk of the wound becoming hæmorrhagic and sloughing.

The diagnosis between intussusception and intestinal effusion is further complicated by the fact that invagination may take place as the result of effusion into the bowel wall. The occurrence of intussusception may be an early or a late complication in the course of an illness characterised by intestinal effusion. This fact is not at present generally recognised and ignorance of it may lead to the overlooking of a very serious complication in this form of hæmorrhagic trouble. The following cases illustrate the occurrence of intussusception in association with intestinal effusion.

CASE 12.—A girl, aged seven years, was admitted suffering from Henoch's purpura. She had a prolonged illness, characterised by recurrent attacks of abdominal pain, vomiting of blood, melæna, bleeding from the nose and gums, purpuric eruption, albuminuria, and hæmaturia, but was discharged cured at the end of three months. There was a recurrence of the symptoms some months later, and during this attack tenesmus developed and continued irregularly for some days. This was accompanied by the passage of blood from the bowel in larger quantities than before, the amount on one occasion being six ounces. Thirst and vomiting became marked, but there was no intestinal obstruction, the motions being frequent, loose, and offensive. A severe convulsion occurred and the girl passed rapidly into an unconscious condition which lasted until death three days later. At the necropsy general septic peritonitis was present, and an intussusception was found composed of the cæcum and part of the ileum. The whole of the intestine involved was much thickened, black, hæmorrhagic, and gangrenous in appearance. The small intestine was distended, and the lower bowel was collapsed and empty, with the exception of the rectum, which contained fæces. The mucous surface of the colon showed a number of clean cut superficial ulcers. This was a case of intussusception arising at a late period of the illness, due probably to the effusion of blood into the bowel wall, and was a complication which at that time I was not acquainted with.

CASE 13 (Dr. F. de Havilland Hall's case).[11]—A boy, aged five years, suffered from pains in the limbs, a swelling in the left popliteal space, and purpura. At first purpura was diagnosed and later rheumatic fever. Nine days after the onset pain and tenderness were present in the lower part of the abdomen, followed by vomiting and constipation. After admission two enemas were given and brought away some hard fæces. The child got worse and fæcal vomiting came on. There was great abdominal distension, and the child cried out in attacks of pain. The abdomen was opened and an enteric intussusception with a piece of gangrenous intestine was found. Resection was performed. The vomiting continued and two or three times a considerable quantity of almost black liquid material was vomited. Death followed two days after the operation. There was no necropsy.

Commenting on this case Dr. Hall says the diagnosis made at first was Henoch's purpura, but he thinks this may be rejected because of the fæcal vomiting, the presence of constipation, the absence of blood and mucus from the stools, and the existence of an intussusception. As the recorded cases show, there is nothing in these signs which are opposed to a diagnosis of Henoch's purpura complicated by an intussusception.

CASE 14 (Mr. Lett's case).[12]—Male, aged three years. There was a history of two days' illness, beginning with pain and swelling in the left knee, followed by swelling of the left elbow, the scrotum, and both legs. Purple watery blisters appeared in the left leg. On the second day recurrent attacks of acute abdominal pain set in and blood and mucus were passed per anum. On admission purpuric spots were present on the ears, legs, and scrotum. A sausage-shaped swelling was present in the right lumbar region. Laparotomy was performed and an ileo-cæcal intussusception was found and reduced. After the operation fresh purpuric spots appeared which became inflamed and sloughed. Diarrhœa with bloody stools set in. Three days after operation abdominal pain was complained of again, the purpuric patches were gangrenous, and the laparotomy wound was purpuric and gangrenous. There was no vomiting. The patient died on the eighth day after operation and at the necropsy general septic peritonitis was present, with an enteric intussusception ten inches above the ileo-cæcal valve. It was five inches long and irreducible.

Mr. Lett's case is particularly valuable because of the occurrence of a second intussusception in the course of an attack of Henoch's purpura. The first one was ileo-cæcal and was successfully treated by operation. The second was enteric and was situated ten inches from the ileo-cæcal valve. The vomiting and pain ceased immediately after the operation, the bowels acted, and the child was free from all signs of intussusception for seven days. Unfortunately, when the second intussusception occurred the child's condition was such that any further operation was out of the question. In this case Mr. Lett has brought forward the most conclusive evidence yet adduced of the causal connexion between Henoch's purpura and intussusception.

It is not difficult to understand why there should be a tendency to intussusception as the result of effusion into the bowel wall. An effusion causes a temporary paralysis in the part of the bowel wall affected, and more or less complete paralytic obstruction follows, with vomiting, abdominal pain, and the passage of blood and mucus. To overcome the obstruction violent peristaltic movements occur in the part of the bowel immediately above, which is driven into the flaccid bowel and an invagination is formed.

Some cases of this affection seem to lead up very readily to a diagnosis of spontaneous reduction of an intussusception. In former years I have accepted this diagnosis without hesitation, but further experience has led me to doubt

[8] Scottish Medical and Surgical Journal, 1908.
[9] Common Disorders of Childhood, 1909, p. 114.
[10] Proceedings of the Royal Society of Medicine, 1909, vol. ii., No. 6.
[11] THE LANCET, May 30th, 1908, p. 1548.
[12] Reports of the Society for the Study of Disease in Children, 1903.

whether it is justified as often as it is made. The invagination of one part of the bowel into another is a pathological condition which, when once started, tends to increase very easily as the course of the affection shows. But the reverse process, the means by which an invaginated portion of bowel can free itself, is not at all clear or easily understood. In cases which are not submitted to operation and which recover the diagnosis must be a matter of uncertainty, but the evidence of effusion into the bowel wall is in many cases at least as strong as that of the spontaneous reduction of an intussusception. The sudden onset of abdominal pain in a previously healthy infant or child, along with vomiting and the passage of blood and mucus from the bowel, certainly suggest intussusception, but the subsidence of all symptoms in from 24 to 48 hours is equally suggestive of effusion into the bowel wall. Discussing this type of case Mr. H. S. Clogg [13] writes as follows:—

> In two cases I have recently seen, both healthy babies, three and six months of age, both were reported as becoming suddenly ill, crying with pain, turning pale, and vomiting. They both passed blood and slime by the bowel. In both cases the history was very suggestive of an intussusception, and the aspect of the infants confirmed this suspicion. The abdomen could be easily palpated and nothing was felt. So strong was the history that I examined under an anæsthetic, still with a negative result. In these two cases I could feel nothing. As both babies were a little collapsed rectal salines were given. This brought away some further blood and mucus, and in 24 hours the babies were perfectly well. It is hardly possible to regard such cases as colitis; personally I should consider them as cases of intussusception reduced spontaneously.

CASE 15 (Dr. Still's case).[14]—Female infant, four months old. Two days previously suddenly began to scream and continued for two hours. Then vomiting and passage of blood and mucus per anum, without fæcal matter. Frequent attacks of abdominal pain. On the day she was seen the bowels had acted twice, once only blood and mucus had passed and the second time the same with a trace of green fæces. Only slight vomiting during previous 18 hours. No tumour felt. An enema of warm olive oil brought away a large quantity of mucus but no fæcal matter. The symptoms steadily diminished and recovery followed. In this case an intussusception had been carefully looked for but none found.

These three cases may be regarded as typical of a class in which a diagnosis of spontaneous reduction of an intussusception is commonly made. On the clinical evidence, however, one can only assert that there were symptoms of obstruction of the bowel with melæna; and these may equally well have been produced by effusion into the bowel wall with temporary paralysis. More precise information is gained when the abdomen is opened and the condition of the bowel can be examined. Even under such circumstances if one is inclined to a diagnosis of spontaneous reduction of an intussusception it is very easy to find confirmatory if not conclusive evidence. The condition of the bowel wall, congested or hæmorrhagic, and thickened by the effusion, is very similar to that of a mechanically reduced intussusception, and the surgeon very naturally assumes that nature has simply anticipated his procedure. In a certain number of cases the further progress of the disease will show clearly that it was quite unnecessary to assume the existence of an intussusception (see Case 8). The following case I accepted at the time as an example of the spontaneous reduction of an intussusception, but now I think it may have been simply a sudden effusion into the bowel wall.

CASE 16.—A male, aged four years. Quite well until 3 P.M. (four hours before admission), when he was suddenly seized with acute abdominal pain. Has vomited three times. Has seemed drowsy and has been having attacks of pain about every five minutes, when he rolls about in agony. Frequent desire to defæcate and straining, but nothing passed. Boy well nourished, but lies in a drowsy condition; looks collapsed, eyes sunken, slightly sick occasionally. Frequent attacks of abdominal pain in which he screams, tosses about, and presses both hands to umbilical region (to which pain is referred); then passes into a state of opisthotonos, with only back of head and heels resting on the bed. As pain subsides the opisthotonos passes off. Abdomen is soft, swollen, not generally tender. A hard tender lump, about the size of a hen's egg, is felt just above and to the right of the umbilicus, and firm pressure here elicits a paroxysm of pain. At 10 P.M. laparotomy. There was no evidence of peritonitis. On following up the small intestine which presented, the last three inches of the ileum were found to be congested, and had a thick solid leathery feel. This was regarded as an intussusception which had been reduced in the process of manipulation. No other evidence of disease found. Boy made an uneventful recovery without pain. There was at no time any blood in motions.

In a recent thesis for the degree of M.D., Mr. Duncan C. L. Fitzwilliams has reviewed the records of a thousand cases of intussusception, and gives the following examples of spontaneous reduction as evidenced at operation.

CASE 17 (Mr. Fitzwilliams's case).—A male child, aged three years with a typical history of 30 hours' duration. No blood had been passed but a tumour was easily felt on the right side of the abdomen. At the operation no invagination was found, but the lower two inches of the ileum and the cæcum, with the adjoining mesentery, were congested and showed subserous hæmorrhages.

CASE 18 (Mr. Fitzwilliams's case).—A male infant, aged ten months, had an indefinite history of illness for eight days and had been acutely ill for about ten hours. There had been spasmodic pain and screaming, and blood had been passed per anum. A tumour was easily felt. At the operation the tumour was found to be reduced, but numerous fresh hæmorrhages and petechiæ were seen on the bowel. One of the extravasations of blood was the size of a halfpenny.

Here again the evidence of a previous intussusception does not appear to be conclusive. Mr. Fitzwilliams adds a third case which had been under the care of Mr. T. H. Kellock and published by him.

CASE 19 (Mr. Kellock's case).[15]—Male infant, 18 months old, admitted with a history of two days' illness characterised by acute abdominal pain, vomiting, and the passage of blood and slime mixed with fæcal matter. Cessation of symptoms for 24 hours and then recurrence. On admission he was evidently under the influence of some anodyne. Nothing abnormal on abdominal or rectal examination under anæsthesia. Soon after admission passed a stool containing a good deal of blood. Laparotomy. No tumour. The lower seven or eight inches of the ileum were quite collapsed and of a dull reddish brown colour, with one or two small hæmorrhages in the wall. Bowel above and below appeared healthy. Rapid and complete recovery.

In this case there may or may not have been an intussusception previous to the operation. Mr. Kellock refers to the influence of the anodyne in this case as aiding the reduction by quieting peristalsis. It certainly is a striking fact that in many of the cases described as spontaneous reduction the symptoms had persisted right up to the administration of the anæsthetic. One cannot help thinking that if reduction of the intussusception did occur, it was not exactly spontaneous but due to the influence of the anæsthetic in checking the excessive peristalsis or spasm and allowing the muscular action of the bowel to come into play in relieving itself.

Cases described as chronic or relapsing intussusception frequently show little conclusive evidence of that affection, and so far as the symptoms go may equally well be referred to a condition of effusion into the bowel wall. Without denying the existence of chronic or relapsing intussusception, of which I have seen undoubted examples, I think that some of the cases so diagnosed are capable of a different interpretation. The following two cases appear to me to have been due primarily to hæmorrhagic effusion into the bowel wall:—

CASE 20 (Dr. Still's case).[16]—Two days before admission a boy, aged two years, was seized with colicky pain in the abdomen, and passed a considerable amount of blood per anum on two occasions. Vomiting also set in and had continued, while the bowels had not acted. Eight months previously there had been a similar attack, with the passage of much blood, and intussusception had been diagnosed at another hospital, where the patient was considered too ill to stand an operation. Gradual recovery had followed. On admission a hard mass was felt in the adjoining parts of the transverse and descending colon, which seemed to harden and soften. On rectal examination some bright red blood came away. The patient looked extremely ill, with sunken eyes, mucus on the corneæ, &c., and operation was not considered advisable. The provisional diagnosis was intussusception, although Henoch's purpura was also considered. Gradual recovery took place, with disappearance of the abdominal tumour. Three weeks later came a recurrence of the symptoms, and a tumour was again palpable in the same situation. The child sank rapidly and died three days later. At the necropsy there were suppurative peritonitis and a large intussusception at the site of the tumour felt during life. The layers were only slightly adherent, so that the intussusception had probably only recurred quite recently. Dr. Still regarded the case as one of relapsing intussusception.

CASE 21 (Dr. Emil Döbeli's case).[17]—A boy, aged eight years, was seized with acute abdominal pain and constipation. The colicky attacks continued, diarrhœa set in, and pure blood was passed per anum. Eight days after the onset purpuric spots on the legs, which later became general, and were accompanied by swelling and tenderness in many joints. From the age of three years the boy had suffered from similar attacks of colicky pain, which had been diagnosed as due to lead poisoning, and from joint pains, which had been regarded as rheumatic. On admission into hospital three weeks after the onset purpuric spots were present on the trunk and extremities, and the eyelids and feet were œdematous. The abdomen was retracted and a tender swelling was palpable in the sigmoid region. This tumour lay in the line of the colon, was firm and irregular, moveable, and apparently immediately under the abdominal wall. Relief from acute symptoms followed the use of oil enemata and much fæcal matter was removed. A week later came a recurrence of the purpura, œdematous swellings, and abdominal pain. The tumour was again felt, larger than before, while under palpation its shape seemed to alter. The diagnosis of ileus from coprostasis was now changed to ileus from chronic or relapsing intussusception of the sigmoid flexure. As the attacks of pain and purpura continued, the patient was referred to a surgeon for operation. The surgeon could not discover any tumour either by abdominal or rectal examination. There was no recurrence of the abdominal pain, but hæmaturia set in and fresh purpuric spots appeared at intervals.

[13] British Journal of Diseases of Children, June, 1908.
[14] Common Disorders of Childhood, 1909, p. 121.
[15] Middlesex Hospital Journal, April, 1904.
[16] Common Disorders of Childhood, 1909, p. 123.
[17] Correspondenzblatt für Schweizer Aerzte, 1908, vol. xxxviii.

The final diagnosis was chronic intussusception from chronic constipation, with secondary purpura. The patient eventually made a complete recovery.

There does not appear to be any necessity to assume the existence of an intussusception in either of these cases. In Dr. Still's case there was an intussusception, the necropsy showing a recent invagination, but the passage of blood from the bowel had been going on at intervals for eight months. Pure blood in large quantity is not usually passed in cases of intussusception, and far less in the chronic form where the circulation in the invaginated portion is not seriously interfered with. Consequently, from the history of severe melæna in Dr. Still's case it may be suggested that the primary trouble was intestinal effusion of blood, and that as the result of this intussusception occurred shortly before death, as has happened in other recorded cases.

This form of intestinal hæmorrhage may simulate certain affections of the colon such as mucous colitis, acute ileo-colitis, and ulcerative colitis. In fatal cases there may be found extensive ulceration of the colon due to the sloughing of the mucous membrane at the hæmorrhagic areas, which ara often diffused widely over the bowel.

CASE 22.—A female child, aged three years, was seized with sudden pain in the left side of the abdomen and passed two motions containing blood and mucus. The temperature rose to 103·4° F. There were frequency of micturition and tenderness over the descending colon. During the next 24 hours she passed on five occasions a large quantity of blood and mucus, and the attacks of pain were sharp and intermittent. The temperature then fell to normal. On the third day there was a good deal of mucus passed, with only a trace of blood, and fæcal matter was present. Some thickening was felt in the left inguinal region but nothing abnormal on rectal examination. The symptoms rapidly passed off and there was no recurrence or evidence of hæmorrhage elsewhere.

This case may be variously interpreted, but from the attacks of pain I was led to believe that hæmorrhage had taken place into the bowel wall. I have seen similar symptoms in a young woman who was said to suffer from mucous colitis. In one of these attacks when she was under observation she passed large quantities of blood and mucus by the bowel and suffered from intermittent and colicky pain in the region of the colon. At other times she suffered from attacks of angio-neurotic œdema, the whole face becoming swollen and œdematous.

CASE 23 (Dr. Ashby's case).[18]—A boy, aged nine years, was suddenly seized with pain in the abdomen whilst at school, followed by the passage of blood and mucus by the bowel; the symptoms continued during the night. After admission next day he passed in the course of 24 hours 12 stools, consisting almost entirely of blood and mucus. Tenesmus and bloody stools continued, and large enemata brought away but a small quantity of fæcal matter. The abdomen was not distended or tender and nothing could be felt on palpation in the way of a tumour. It was resolved to open the abdomen in order to relieve an invagination of the bowel if present. This was done but only an intensely congested colon was found. Death followed eight hours later. At the necropsy the stomach and small intestines, to within 20 inches of the cæcum, were found normal; the last foot or two of ileum was found congested, with patches of thin membranous exudation. The mucous membrane of the colon, sigmoid flexure, and rectum was intensely injected, the changes in the lowest parts being most marked, and the rectum being hæmorrhagic. There was no ulceration. (This case was recorded by the late Dr. Ashby in his standard work as one of "acute ileo-colitis," but he wrote me that he had come to the conclusion that it was really an example of Henoch's purpura of unusual severity.)

Ulcerative colitis is not a common affection in early life and some of the recorded cases seem rather to fall into the category of the affection we are considering. The post-mortem evidence is by no means conclusive, for it may not settle the question as to whether the ulceration was primary and the hæmorrhage secondary or *vice versâ*. In cases of Henoch's purpura I have seen definite ulceration of the colon which was clearly secondary to hæmorrhage into, and sloughing of, the mucous membrane. The presence of other hæmorrhages in the bowel wall is always suggestive of a primary hæmorrhagic affection and secondary ulceration. A diagnosis of acute dysentery is also sometimes made when the clinical course of the disease can be fully explained by a condition of extensive hæmorrhagic effusion into the wall and the lumen of the bowel.

It is difficult to bring forward any evidence from the text-books of the gravity and importance of these gastro-intestinal crises from hæmorrhage because the condition is generally ignored and any examples are usually to be found classed under some other disorder. Without adding anything fresh I have tried to show by collecting a number of cases that the condition is one of considerable importance, and that there are various problems connected with it about which we require more information before any dogmatic statements can be made.

Wimpole-street, W.

[18] Ashby and Wright: Diseases of Children, p. 102.

A CASE OF ACUTE MASTOIDITIS, WITH LATERAL SINUS SUPPURATION AND CEREBELLAR ABSCESS AS COMPLICATIONS OF THE OPERATION FOR THE REMOVAL OF TONSILS AND ADENOIDS.

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A CHILD, aged seven years, had an operation performed for the removal of tonsils and adenoids on Dec. 28th. She was kept in bed for five days, and was then looked upon as convalescent. Nine days later she was admitted to the hospital with the history that she had had ear trouble in both ears for four days. On admission the temperature was 100·6° F., pus was discharging freely from both ears, and on the right side there was a superficial mastoid abscess which was opened at once. The mastoid antrum was at the same time cleared out and found to be full of pus. No improvement resulted, and as the child was very ill, the temperature having risen to 104·2°, the wound was opened up 48 hours later. Pus was seen to be welling into the cleaned out mastoid antrum from behind, so the lateral sinus was exposed and the groove was found to be full of pus. The internal jugular vein was not considered at this time to be thrombosed. The child did not improve. She was desperately ill and had pyæmic symptoms. The temperature was 104·8°, and there was a little diarrhœa. On Jan. 15th, two days after the second operation, the internal jugular vein in the neck was divided between two ligatures; it was quite patent. The old wound was opened up and the sigmoid groove exposed more freely both in a downward and backward direction. The temperature remained high, up to 105°, for three days, and then gradually fell to normal. Convalescence was slow; it was a month before the child really showed much vitality. Early in February paralysis of the facial nerve of the side operated on became suddenly marked, but this disappeared without any special treatment, and the child was in March perfectly well. She was sent in very good condition to a convalescent home, and after being there about four weeks was readmitted to the hospital on April 29th because she had become drowsy, was sick, and had had a convulsion. On that day she was dull and apathetic, had a subnormal temperature, and a slow pulse. She was sick several times and had a few slight general convulsions soon after admission. As the symptoms of cerebral abscess were quite clear she was trephined at once over the cerebellum. This spot was selected in preference to the temporo-sphenoidal lobe as the lateral sinus groove had been diseased previously. At the first puncture of the cerebellum pus flowed freely by the side of the sinus forceps, a tube was put in, and in a few hours the child was sitting up in bed, quite lively. Drainage was difficult, the tube having to be readjusted and the track dilated on two or three occasions, owing to the reappearance of symptoms of cerebral pressure. Later a discharge of cerebro-spinal fluid was seen, slight symptoms of meningitis developed, and the child died comatose on June 1st, five months from the commencement of her illness.

Necropsy.—The right lobe of the cerebellum was converted into a large abscess cavity; there was a communication between it and the lateral ventricle of the same side, which, as well as the left ventricle, was full of pus. I think if it had not been for the last unfortunate complication (the communication of the abscess cavity with the ventricles) the child would have lived. I do not see how such a misfortune could have been avoided, nor what could have been done for it when it had occurred.

There are one or two points of interest in this case. First, acute mastoiditis and its complications is fortunately an exceedingly rare result of the operation for the removal of tonsils and adenoids. Neither of my two senior colleagues nor

myself, in a very extensive experience of this operation, has ever seen it before. Otitis in its various forms is not uncommon, especially in those children who have had previous ear trouble (in this case no history of any ear trouble could be obtained). It is, I think, generally due to sepsis spreading up the Eustachian tubes from the raw surface left round the orifices by the scraping. I am sure I have seen this complication less frequently since I have adopted the plan of scraping only strictly in the middle line and leaving the few scraps around the orifices of the tubes alone. Another important factor in the avoidance of subsequent ear trouble is the after-treatment, a week in bed in a warm room being the most essential point. Secondly, it brings home closely to one the fact that this operation is not always the trifle it is sometimes thought to be. Many complications *may* follow it—e.g., ear trouble, suppuration in the lymph glands of the neck, hæmorrhage which may even be fatal, and so on. I think we should never tell the parents that the operation is a very minor one.

I am largely indebted to my colleagues, Mr. G. Morgan and Mr. H. H. Taylor, for advice and assistance in connexion with this case.

Brighton.

ORAL SEPSIS IN ITS CONNEXION WITH THROAT DISEASE.[1]

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1. *The Signs of Oral Sepsis.*

THERE are many more than are to be found in text-books. All of them can be categorised under the signs of inflammation of mucous membranes—redness, swelling, heat, pain, increased secretion, and loss of function. A peritonsillar abscess is the best example of an intense oral sepsis.

Redness.—This varies in intensity and can be general or local; locally it is most evident opposite a focus such as a septic tooth. In slight cases it is evident as a red line parallel to, but separated by one-sixteenth of an inch from, the border of the gums. As long as this red line is present there is oral sepsis. It is most persistent on the gums bordering the lower molars, and particularly the lower incisors. A characteristic reddening from oral sepsis is to be seen on the soft palate, as a red band half an inch broad commencing on the anterior pillar and arching round towards the centre of the soft palate, but just stopping short of the uvula. The remainder of the soft palate may be quite pale and the red band shows up very distinctly.

Swelling.—This is evident in most cases. It involves all the mucous membranes—of the gums; of the cheeks, which have the teeth plotted out in the œdematous swelling; of the tongue, which is similarly marked by the teeth; and of the lips. The swelling of the lips is most marked in infants, leading to a great protrusion and eversion of the lower lip.

Heat and *pain* are not extreme, but in some cases the breath appears hotter than normal, and discomfort causes the speech to be slovenly.

Increased secretion is evidenced in slight cases by the breaking of bubbles between the back part of the tongue and the soft palate when the mouth is opened. In the worst cases—e.g., in peritonsillar abscess—the dribbling is excessive. Dribbling is also well seen in the "teething" of infants, which is neither more nor less than a fairly intense stomatitis, and is most evident in bottle-fed babies in whom decomposition of milk is more likely to occur.

Loss of function.—Of all the signs of oral sepsis this is the most marked and has been the least recognised in its significance and its detrimental effects. It is characterised by diminution or loss of function of all the muscles of the oropharynx—viz., those of the pharynx, palate, tongue, cheeks, and lips. The buccal, oral, and lingual muscles are used for forwarding the food particles to the gullet, for keeping the mouth clear of food, for cleansing the mouth and teeth, and with the pharynx for articulation of speech. The teeth owe a great part of their cleanliness to proper tonicity of those muscles, and the moment their function is diminished by oral sepsis there is an increase of deposited muco-pus and an increase of oral sepsis; that is to say a true vicious circle is started. The teeth that receive the least cleaning naturally can be readily identified—viz., the lower incisors and the lower molars, precisely the ones that show the red line, the sign of oral sepsis, longest.

The speech in oral sepsis, on account of the lack of tone in the muscles and from the discomfort caused by the swelling of the mucous membranes, becomes slovenly, partially guttural in character, the back part of the tongue being used in preference. It is so characteristic that perhaps the term "circumvallate" speech might be coined for this, as it is in the region of the circumvallate papillæ that the speech is articulated. An extreme case of this sort in a child where the speech was almost unintelligible was cured by proper use of the toothbrush (and the exercises in articulation by the teacher which before had been tried in vain).

The result of this loss of function of the muscles, to which I should wish to call most particular attention, is the dropping of the lower jaw and of the lower lip, which becomes thereby everted. The well-known open-mouth vacant expression usually attributed to adenoids and other nasal obstruction is really a characteristic of oral sepsis, which itself may be set up by nasal obstruction. The so-called "adenoid facies" is really that of oral sepsis, however induced. It is well seen in "teething" infants.

2. *The Effect of Oral Sepsis on the Throat Generally and Particularly on the Tonsils.*

My attention was first drawn to this by the need of finding other causes for laryngitis than "hysterical aphonia" and "nasal laryngitis." In throat hospitals the practice prevailed of at once depressing the tongue with the spatula, thereby concealing the teeth from view, without previously examining the state of the mouth. The practice of first drawing the cheeks aside to examine the state of the teeth is getting more and more universal. The following cases helped to emphasise the importance of oral sepsis in throat work.

CASE 1.—A male, aged 40 years, diagnosed by a well-known laryngologist as having tuberculous laryngitis. The cords were reddened and there was much muco-pus on the slightly swollen arytenoids. Quiescent tuberculosis was present at the right apex. He had a complete upper tooth plate lying on a row of septic stumps, each surrounded by florid granulations. Removal of the stumps on my advice cured the laryngitis in a month.

CASE 2.—A male, aged 19 years. His voice began to break four years ago. For the past two years he had been under treatment at a throat hospital for "squeaky" voice. The cords were reddened; approximation was incomplete. Removal of one stump and careful brushing of the teeth produced in six weeks such an alteration in the voice that his family and himself were continuously laughing about it. He had now a clear bass voice.

CASE 3.—The patient, a male medical practitioner, used to suffer from four or five severe colds every winter. He got severe septic stomatitis caused by sucking a post-mortem wound of the finger. Great attention has since been paid to cleansing the teeth. He now has one "cold" in two years on the average.

Seven elementary school teachers frequently off duty for loss of voice, quinsies, and sore-throat; since having the teeth attended to they have rarely any trouble.

Peritonsillar abscess.—Of 49 cases of this condition 47 had an extremely septic lower molar on the same side. One case (bilateral) had septic molars on both sides. The pus from those abscesses has the same characteristic odour as that from a dental antrum. The oral sepsis in those cases is extreme and is usually regarded as secondary; it is probably primary.

Unilateral enlargement of the tonsil.—Of 231 cases (in children of school age) of unilateral enlargement of the tonsil 135 had dental caries, mostly of lower molars, and oral sepsis on the side of the enlarged tonsil; 67 had dental caries and oral sepsis on both sides; 16 had no oral sepsis at all; and 15 had dental caries and oral sepis on the opposite side. I have never seen a case of unilateral inflammatory enlargement of the tonsil in an infant, in whom, of course, the oral sepsis is always bilateral. I believe that the organisms round septic teeth travel directly backwards along the sulci on either side of the lower jaw, and, meeting with

[1] A paper read before the Ipswich Clinical Society.

the tonsil, settle there and cause its inflammatory enlargement. This would also explain the peculiar position of the red band of oral sepsis on the soft palate mentioned above.

3. *Physiological Function of the Tonsil and other Adenoid Tissue in the Pharynx.*

In children the lymphadenoid tissue is more extensive than in the adult and is spread out on the wall of the pharynx, forming a complete ring continuous with the adenoid tissue in the naso-pharynx. The lower limit of adenoid tissue is very irregularly defined and may in cases reach the glottis. As age increases this adenoid tissue disappears and remains chiefly in the tonsil and the so-called lateral bands of the pharynx. It is possible that this disappearance is the result of the frequent attacks of catarrhal conditions in children, such as measles, scarlet fever, sore-throats and common colds, &c. Each attack would cause a degeneration of certain portions of adenoid tissue which would not be replaced. I would look upon the adenoid tissue in the pharynx as a protective barrier in which the attacking micro-organisms are dealt with actively, in which leucocytosis is most active and where immunisation of the body can be developed. Every attack of the invading micro-organisms would cause an inflammatory enlargement of the adenoid tissue, and in the fight certain portions of the adenoid tissue would be killed, so that the power of the adenoid tissue to resist invasion would be diminished by each attack. In addition, however, the numerous crypts existing in adenoid tissue act as good covering for the attacking organisms where they mass together for a further onslaught, which is rendered the more easy on account of the lessened resistance already produced, and once the adenoid tissue is severely degenerated it is not only useless as a protecting barrier but provides a point of vantage for further invasion.

The tonsil itself I would look upon as the special adenoid (lymphatic) gland of the mouth, lying openly in it, specialised it is true, but just in the same way that a Peyer's patch in the intestine is specialised. A tonsillitis would thus be an adenitis, and a peritonsillar abscess a periadenitis. As a rule the tonsil and other adenoid tissue in the pharynx act as sufficient scavengers for the organisms in the mouth, and at the most there is simply inflammatory enlargement caused. But occasionally the tonsil and adenoid tissue are overwhelmed in the attack and the next link in the lymphatic chain becomes involved—viz., the glands at the angle of the jaw—and these take up the fight, undergoing enlargement in the process. If the attack is still more severe then the organisms no longer confine themselves to the mouth, but travel either upwards to the naso-pharynx or downwards to the stomach and lungs. Naturally when the tonsils and other adenoid tissue are already badly degenerated and act as harbourages for micro-organisms, the barrier power is extremely diminished and attacks of naso-pharyngitis and bronchitis become more and more frequent. I believe that the spread of inflammatory conditions from the oro-pharynx to the naso-pharynx by continuity is more frequent than is supposed. It must be remembered that Greville MacDonald long ago pronounced the nasal cavity to be normally free from organisms, while the mouth is normally crowded with them.

4. *Treatment and Indications for Such Based upon the Above.*

When inflammatory enlargement of the tonsils is recognised the treatment is that of enlarged glands in any part of the body: 1. Remove the cause. 2. If that is not sufficient, then the enlarged degenerated tonsil should be removed by surgical interference. Removal of the cause is the prevention or cure of oral sepsis, the extraction of septic molars, and careful mechanical cleansing of the teeth by brushing. This must precede surgical removal of the tonsil. In fact, the reckless way in which we all have removed tonsils without attending to the causal oral sepsis cannot be too strongly condemned. It is to my mind the explanation of why so many cases show unpleasant complications and bad results. Removal of the tonsils would be less indicated by their actual increase in size than by the evidence of their inefficiency, as shown by swelling of the glands at the angle of the jaw and by frequent attacks of naso-pharyngitis and of bronchitis. The use of the tooth-brush is essential before, during, and after tonsillotomy, and as a means of preventing attacks upon, and preserving the integrity of, the adenoid protecting ring cannot be too strongly advocated.

Ipswich.

A CASE OF PRIMARY SARCOMA OF THE DUODENUM.

BY H. M. MACKENZIE, M.B. EDIN., D.P.H. CANTAB.,
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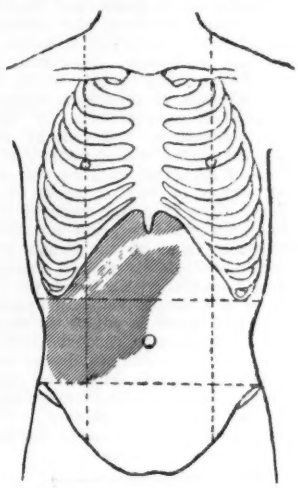
THE comparatively rare occurrence of primary sarcomatous growths originating in the small intestine, and more especially in the duodenum, lends some degree of interest to the present case.

The patient, a Hindu labourer, aged 18 years, was admitted to the Mayo Hospital, Lahore, on Dec. 21st, 1908, under the care of Major H. G. Melville, I.M.S., complaining of pain in the abdomen and back and swelling of the feet. His family and personal history were good and up to the date of the present illness his health had always been fair. The present illness began some 12 days before admission, when he first felt pain in the abdomen and back, and some days later he noticed swelling of his feet. No treatment was adopted, but as the symptoms became more severe he came to hospital. On admission the patient, an anæmic, poorly developed youth, was suffering from pain in the abdomen, especially marked in the right hypochondriac and right lumbar regions and also from pain in the back in the middle line, the pain in both places being increased on pressure. He was markedly jaundiced and passed clay-coloured stools, but there was no diarrhœa or melæna. The urine was normal. The appetite was diminished and thirst was increased and the temperature was subnormal. On examination of the abdomen a large, moderately firm mass, moving with respiration and mobile on palpation, was found to occupy the right hypochondriac, right lumbar, and part of the epigastric and umbilical regions, as shown in the illustration, the inner margin being



distinctly nodular. The lower edge of the liver was palpable in parts, other parts being somewhat obscured, and light percussion gave a tympanitic note between the upper margin of the swelling and the edge of the liver, except on the right side where the dulness was continuous. There was some fluctuation of the swelling towards the upper and inner margin. The mass was diagnosed as a malignant growth of the right kidney, probably sarcomatous, with dilatation of the gall-bladder from obstruction of the common bile duct. General symptomatic treatment was adopted, but the condition of the patient steadily grew worse and he died on Jan. 12th, 1909.

The post-mortem examination was conducted 24 hours after death. The body was that of an emaciated, poorly developed youth and showed very marked jaundice. Post-mortem lividity was slight and rigor mortis was present in the lower limbs only. The abdomen, which was retracted, showed slight fulness on the right side but no other abnormality externally. On opening the

abdomen a large, fairly firm, but very friable tumour was found occupying the upper two-thirds of the right half of the abdominal cavity, extending downwards for about 5½ inches from the lower margin of the liver and from the right flank inwards nearly to the umbilicus. The duodenum disappeared into the centre of the mass, and several coils of small intestine were firmly adherent to its antero-internal surface, as was also the cæcum in the region of the appendix. The right kidney was considerably enlarged and partially imbedded in the growth from it could not be separated, but there was a sharp line of demarcation between the kidney substance and that of the tumour, and sections examined microscopically showed vestiges of the kidney capsule and no infiltration of the kidney. The right suprarenal body was enlarged to twice the normal size but was not adherent, while the ureter was patent and not affected. The pancreas was somewhat enlarged and adherent to the posterior surface of the growth. There was no connexion between the tumour and the liver, but the gall-bladder, which projected on to the anterior surface of the tumour, was dilated, containing over 4 ounces of thick bile, due to occlusion of the common bile-duct from pressure exerted by the tumour. The distended gall-bladder accounted for the fluctuation which was made out on physical examination. On following the duodenum into the tumour and laying it open, it was found to dilate into a cyst-like cavity some 3 inches in diameter, with rough, irregular walls, from the lower end of which it emerged again as a recognisable structure. Microscopical examination showed the tumour to have no capsule and to be composed of a stroma of fibrous tissue containing poorly developed blood-vessels and having the spaces filled with small cells. Some of these were irregular in outline, but the majority were of the round-cell type, with large deeply staining nucleus and faintly staining protoplasm. A delicate fibrillated intercellular substance could also be distinguished. The right kidney and the liver presented no specially noteworthy appearances, the kidney showing slight breaking down of tubular epithelium in places and the liver showing commencing monolobular cirrhosis with dilatation of bile capillaries. The pancreas, although adherent, showed no evidence of cellular infiltration. Successive sections of the duodenal wall from the point where it entered the tumour to the point of maximum dilatation of the cavity showed gradual disappearance of the structure of the glandular epithelium, followed by that of the muscular wall, until at the widest portion of the cavity there was no trace of intestinal wall, the wall of the cavity being composed wholly of tumour tissue of the nature described. Smears made from the contents of the cavity showed the ordinary intestinal bacterial flora and also many loose cells resembling those of the tumour in character. Some of the mesenteric glands showed enlargement, but microscopically no metastases were found, the enlargement being of the nature of a simple lymphatic hyperplasia. No secondary growths were found in any of the organs. Death appeared to be due to general cachexia and exhaustion, hastened probably by the toxæmic condition caused by the obstruction of the common bile duct. The rapid development of the primary tumour and the absence of any metastatic growths are noteworthy features in the case.

I am indebted to Major Melville for the report of the clinical symptoms and physical signs.

A CASE OF INHERITED TACHYCARDIA.

BY JAMES KIRKLAND, M.B., C.M. GLASG.

THE following case may be of interest to readers of THE LANCET. It clearly demonstrates that heredity plays a very active part in the etiology of tachycardia. I cannot find any other case reported having such a remarkable family history. Dr. A. W. Falconer in the *Practitioner* for February, 1909, records a case occurring in mother and daughter, and several other cases have from time to time been reported where the disease has been passed from a parent, usually the mother, to one or two children. But this case is remarkable in that the inheritance can be traced from both parental branches, and descends to almost all the issue to the fourth generation.

The particular member of the family now under my care, and whose case is here reported, is a male, 56 years of age, single, of no regular occupation, of independent means, of average build, but whose weight varies considerably (e.g., in February, 1906, he weighed only 6 stones 9½ pounds, in October, 1907, he weighed 12 stones 3½ pounds, and his present weight is 10½ stones) and who is 5 feet 10½ inches in height. He consulted me for nervous depression and tachycardia early in the present year. He has never been strong, having had pneumonia when six months old and peritonitis at 11 years of age. In 1897 he had a very bad attack of heart trouble—tachycardia, with hæmorrhage, supposed to have been from the lungs, but there was no trace of tubercle bacilli in the sputum, nor is there any now. This recurred in January, 1898. After several minor attacks he had a very serious one in October, 1900, followed by collapse. No record has been kept as to the rate of the heart beat, nor the length of time the attacks lasted. In 1901 he had nine attacks of a more or less serious nature, lasting from 18 to 21 hours. Bromide of potassium and morphine were used, evidently with success. In 1902 he had six bad attacks preceded and accompanied by "green sickness" and dyspepsia (flatulent). These lasted from five and a half to 23 hours. Bromides and morphine were pushed more strongly than in 1901. In February, 1903, there was a very bad attack and for the first time dyspnœa was recorded. In March, 1903, the patient had two attacks. On the first occasion irregularity was noticed, and this has remained a feature of the attacks ever since. On the latter occasion it is said that a gall-stone was passed. The "dark green sickness" was excessive and nothing seemed to give any relief until this stone passed. In April, 1903, "congestion of the base of the brain" was noted and strychnine was used for the first time. The attacks now became more frequent; all seem to have been accompanied by more or less dyspnœa, flatulent dyspepsia, and sleeplessness. There has also been a cough, with profuse frothy expectoration free from tubercle bacilli or blood. The irregularity at first would pass off with the attacks, but it is now (1909) constant. There was a rise of temperature on several occasions, but it was due, I think, to other causes. The patient could not eat anything but the lightest food on account of dyspepsia and consequent "heart hurry." One peculiarity that was noticed was the singular effect which hair-cutting or beard-trimming had upon the patient. It seemed to make him feel sick and faint, and he looked pale and haggard. So marked was this that his friends dreaded the ordeal and he himself postponed it as long as possible.

When the patient came to place himself under my care his heart beats varied from about 120 to 240 (the latter when an attack came on). There is a systolic mitral murmur and strong pulsation in the right side of the neck; on the left it is much less marked. The right lobe of the thyroid gland is enlarged and evidently acts as an irritant to the pneumogastric nerve; pressure upon this gland seems to excite the patient and to increase the frequency of the heart beat. The lungs are free from any defect in the apices, but there are moist râles in both bases. There is a varying amount of flatulent dyspepsia and a troublesome cough with profuse expectoration (free from tubercle bacilli). The urine is normal (specific gravity 1022) and the bowels are regular. The nervous system is far from satisfactory and the patient is melancholy and depressed. There is marked irregularity of heart action, which is greatly increased on any slight exertion.

Since I have had the patient under my care he has had only one attack of a serious nature. The heart beats were between 220 and 240. It was difficult to count owing to the irregularity. Dyspnœa was most distressing, increased by the cough and any slight exertion, even eating or drinking. The voice was much affected, amounting at times to aphonia. There were great abdominal discomfort and flatulent dyspepsia. The patient had to be propped up in bed, and was most comfortable and easy in this position and the dyspnœa was less severe. The attack came on suddenly after a walk that was beyond his strength, and lasted 28 hours, passing off as quickly. I tried many remedies without success, but finally a hypodermic injection of strychnine together with a mixture containing apomorphine hydrochlor. (1/16 grain), caffeine hydrobromide, &c., seemed to cut the attack short. I am now using 15 drops of digalen (a continental remedy and an extract of digitalis) thrice daily. It seems to have a very good effect upon the heart, which has greatly improved in every way since I began using it.

Family history.—This is most interesting, and I can find no case recorded with so marked a family idiosyncrasy towards tachycardia or so clear a history of heredity in

this direction. The whole family practically seems to be subject to the disease. The grandmothers on both sides of the family had marked cardiac disease, although it is not known whether it was actual tachycardia or not. The father was delicate as a young man, and he died from heart failure following influenza. One of the father's sisters suffered terribly from severe heart attacks, probably tachycardia, and she died from heart affection. The mother was threatened with pulmonary trouble in her youth, but this tendency passed off. She was all her life afflicted with intermittency of pulse, breathlessness, and palpitation. There were six daughters and three sons. The patient's two brothers are alive and both suffer at times from cardiac pain and palpitation, sometimes accompanied by slight dyspnœa. The eldest sister died at 28 years of age from pneumonia; she also suffered from cardiac discomfort with breathlessness. The second sister, who died at the age of 36 years, had splenic disease. She was married but had no children. She developed tachycardia from sea-sickness on a long voyage. The third sister died from peritonitis. In her case there was no apparent heart trouble so far as the patient knows. The fourth sister is still alive and is well but not robust. The fifth sister, who had pronounced heart trouble, died at 46 years of age from heart failure, and for the last three or four months of her life she was very ill suffering from tachycardia accompanied by dyspnœa. She was never able to take proper food, as tachycardia was sure to follow an average meal. The sixth sister died at about six years of age from concussion of the brain. She had dropsy which was said to be due to cardiac disease. The eldest niece has developed symptoms of tachycardia and cannot join in games, races, &c.

We thus see that both grandmothers, the father, the mother, the aunt, four out of six daughters, the three sons, and at least one niece were, or are, victims to heart lesions. The trouble did not show itself to any appreciable degree in most of these cases until at least early adult life. We cannot therefore say definitely how many of the fourth generation will escape, but from present appearances it is almost certain that more than the one will suffer.

Postscript.—Since I wrote the above notes of the case the patient died very suddenly during an acute attack.

Leigham Court-road, S.W.

THE EFFECT OF DIPHTHERIA ANTITOXIN ON THE TUBERCULO-OPSONIC INDEX.

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IN the *Liverpool Medico-Chirurgical Journal* for 1906, Vol. XXVI., Dr. T. R. Bradshaw and Dr. E. E. Glynn recorded in a series of nine cases the occurrence of low indices to the tubercle bacillus in patients previously injected with anti-diphtheritic serum. The number of cases was not large enough to justify a very decided inference, and the following observations were undertaken with a view of clearing up the relationship. The subjoined tables give the results in a concise form.

TABLE I.

—	Before antitoxin.	24 to 48 hours after.	14 to 15 days after.
1	0·97	1·00	0·75
2	1·06	1·04	0·94
3	0·99	0·98	0·99
4	1·12	1·21	0·94
5	0·85	1·27	0·82
6	1·01	1·03	0·83
7	1·00	1·08	1·00
8	1·03	0·88	1·04
9	0·97	1·07	1·03
10	0·91	—	1·00
11	1·01	1·14	Died.
12	1·00	1·10	1·03
Average ...	0·99	1·07	0·94

It may be observed that all the cases examined were free from obvious signs of tubercle, none were under a year old, and the blood was submitted to examination within 24 hours of withdrawal.

TABLE II.

—	Index.	Amount of antitoxin.	Day after injection.	Age of patient.
1	0·91	60,000 units.	10th	—
2	0·93	12,000 ,,	22nd	4 years.
3	0·66	12,000 ,,	25th	4 ,,
4	0·78	21,000 ,,	26th	4 ,,
5	0·86	15,000 ,,	26th	1½ ,,
6	0·91	15,000 ,,	28th	6 ,,
7	0·74	15,000 ,,	28th	18 ,,
8	0·94	18,000 ,,	29th	—
9	1·00	15,000 ,,	29th	17 years.
10	0·87	9,000 ,,	29th	12 ,,
11	0·94	18,000 ,,	31st	7 ,,
12	0·80	9,000 ,,	32nd	—
13	0·84	9,000 ,,	30th	8½ years.
14	0·73	18,000 ,,	34th	12 ,,
15	1·09	6,000 ,,	34th	1½ ,,
16	0·75	24,000 ,,	35th	6 ,,
17	1·03	9,000 ,,	35th	2½ ,,
18	0·88	12,000 ,,	36th	—
19	0·83	30,000 ,,	39th	—
20	1·00	12,000 ,,	40th	—
21	1·01	18,000 ,,	46th	2 years.
22	1·05	24,000 ,,	46th	—
23	1·16	12,000 ,,	47th	—
24	1·02	30,000 ,,	47th	—
25	0·96	12,000 ,,	48th	5½ years.
26	0·97	15,000 ,,	50th	2 ,,
27	0·75	18,000 ,,	54th	—
28	0·91	15,000 ,,	56th	7½ years.
29	1·01	18,000 ,,	58th	2 ,,
30	0·97	30,000 ,,	72nd	7 ,,
Average ...	0·913	—	—	—

In no instance were less than 200 cells counted, the average number of bacilli being 2 to 3 per leucocyte.

From these results it will be seen that there is no great variation in the average index before and after the injection of serum. Nevertheless, a definite rise is apparent in the average index two days after injection, and this gains significance from the even distribution over individual readings. (Compare columns 1 and 2, Table I.) This was also noted in two of Dr. Bradshaw's cases. In Table II. the average index is within normal limits, but more than one-third of the indices are below 0·90, only six are above unity, while five are below 0·80. Arranging these according to the week in which taken, one half fall in the fourth and fifth weeks, giving an average of 0·86, and those during the sixth and seventh weeks 0·96. The other factors—age and dosage—seem to have little influence. As regards the former, the average index of those up to and including four years is about equal to the average of those between four and seven years and also to the total average. In the matter of dosage again, the average of cases receiving from 15,000 to 60,000 units of antitoxin is practically the same as that of those who got only from 6000 to 12,000.

One must conclude, then, that in healthy subjects the effect of diphtheria antitoxin on the tubercle index is small, and it is quite possible that the larger variations are due to some hidden tuberculous lesion—e.g., in Cases 4 and 5, Table I. But two points seem to emerge from these figures. Firstly, that there is in the majority of cases a definite rise in the tuberculo-opsonic power shortly after the injection of antitoxin; and secondly, that during some few weeks after this a somewhat low index to the tubercle bacillus is the rule. Also, these effects are independent of the quantity of antitoxin administered and probably of the age of the patient.

In conclusion, I have to acknowledge my indebtedness to

Dr. J. Brownlee and Dr. A. S. M. Macgregor of Belvidere Fever Hospital, Glasgow, whence I derived most of my material.

Glasgow.

A CASE OF MISSED LABOUR.

BY PETER McEWAN, M.A., M.B., CH.B. EDIN., F.R.C.S. EDIN.,

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A MARRIED woman, 29 years of age, was admitted to Bradford Royal Infirmary on Oct. 24th, 1907, suffering from "abdominal tumour." Her menstruation had been regular until Oct. 19th, 1906, when her period ceased. In January, 1907, her abdomen became larger and continued to increase in size. Milk appeared in her breasts and she felt quickening. She had morning sickness and thought herself pregnant. The abdominal swelling gradually increased and the amenorrhœa persisted until May 19th, when she had a flooding followed by a slight reddish vaginal discharge, occasionally offensive, for ten weeks. She was in bed a few weeks; she had no febrile symptoms, and complained only of weakness. Since then she had two periods, one in September and the other early in October, both normal, but the loss was slight. She had no pain at these periods. She had had a feeling of weight in the pelvis, mainly on the right side, for the previous five months and her strength did not return satisfactorily. Her abdomen diminished in size from May 19th onwards. She had no trouble with the bowels or bladder except that she thought she had not been able to empty her bladder completely for some months, the act of micturition stopping suddenly. She had two children, six and seven years old respectively, and had had one miscarriage (at three months) four years ago, after which the patient was curetted.

On physical examination the patient was a dark brunette, fairly well nourished, with a slightly hectic flush about her cheeks. The mammæ were large and lax and showed a very well-marked areola and secondary areola; no milk could be expressed. The abdomen was distended to about the size of a seven months' pregnancy, and on palpation a rounded tumour could be felt rising out of the pelvis and extending about three fingers' breadth above the umbilicus. The upper limit of the swelling was rather higher on the right than on the left side, and its lateral margins were 1 inch from the right and 3½ inches from the left anterior superior iliac spines. The tumour as a whole had slight lateral mobility. It was firm in consistence, and in the right loin one could feel hard rounded bodies, and at times crepitus could be obtained. On vaginal examination the perineum was lax; the cervix parous, firm, slightly mobile; the os admitted the finger tip; the body of the uterus could not be felt apart from the rounded mass which filled the upper part of the pelvis and constituted the lower portion of the rounded abdominal tumour. There was a brownish discharge, slightly offensive.

On admission the patient's temperature was 103·6° F., the pulse was 130, and the respirations were 30 per minute. The tongue was coated. She felt quite comfortable. She remained in bed from Oct. 24th to 30th. She had a vaginal douche three times a day, large diet, and twice a gentle purge. She had an offensive vaginal discharge, reddish-brown, not much in amount, but coming away more freely after the douche. Her temperature remained high, with marked morning remissions, but even with a temperature of 103·4° she complained only of slight thirst and of feeling hot. The pulse varied from 98 to 126, and the temperature from 98° to 103·6°. Difficulty was experienced in attempting to pass the sound, and it was decided to examine the patient under an anæsthetic on Oct. 30th. Under ether the sound passed into the uterus for six or seven inches with ease, and it was decided to dilate the cervix and empty the uterus. The cervical canal was dilated first with Hegar's dilators, then with Bossi's dilators slowly and gently. The hand was then passed into the uterus and the shoulder of the fœtus was found presenting. The uterine wall was felt to be intact. The arm of the fœtus was pulled down; the head was cut off with a sharp hook; the body, then the head, extracted easily; the cord remained attached in utero. A good deal of dirty fluid escaped and the odour was exceptionally offensive. A coil of small intestine now appeared at the vaginal orifice, and when the hand was passed into the uterus was found to protrude from a rent in the posterior part of the lower uterine segment, slightly to the right of the middle line. The intestine was pushed up. The abdomen was opened by median incision. The omentum and bowel presented. A large flabby uterus, necrotic, adherent all round to various parts of intestine, was exposed. There was no sign of any attempt at contraction on the part of the uterus, and its wall was very thin, hardly thicker than stout brown paper, except in the region around which the placenta was attached. The necrotic wall had given way in several places besides that felt per vaginam. The upper part extended as far as the under surface of the liver, to which it was adherent. The "uterus" was dissected off from intestine and omentum; parts of the latter being necrotic were removed. A portion of the uterine wall was too closely adherent to be removed with safety and the surface was pared with scissors. The uterus and ovaries were removed and a few bleeding vessels were tied. Some necrotic tissue adherent to the under surface of the liver was scraped and a drain was left in the loin. Meantime the abdominal cavity was thoroughly washed out with saline solution. A packing of iodoform gauze was left as a vaginal drain and the abdominal incision was closed with through-and-through sutures of silkworm gut.

During the operation about two and a half pints of saline solution were injected intravenously and 20 minims of strychnine hypodermically. The patient's general condition was fairly good until near the end, when the pulse became small and weak, and she left the theatre almost pulseless. She had hot bottles, continuous rectal irrigation, and digitalin and strychnine hypodermically. Her pulse became countable, regular, about 170, and she regained consciousness in an hour or two, but she never rallied from the profound shock of the operation, and died in 15 hours.

The placenta was firmly adherent to and incorporated with the uterine wall. The umbilical cord was inserted about the centre. Only over the placental area did the upper part of the body of the uterus show anything approaching the normal thickness; in the other parts it was exceedingly thin, yellowish in colour, and tore readily when handled; there was no obvious muscular structure. The upper part did not bleed when torn. Near the cervix the muscular substance was apparent, but softer than normal and bled on cutting. The fœtus was a male, well developed, looking not much short of full time. The skin was white, and there were no blebs, areas of pigmentation, or shrivelling. The skull bones were well developed but separated, and exposed the membranes of the brain loose and shrunken. The genitals appeared to be nearly fully developed. The length from the heel to the natal fold was about five inches, of the upper limb about five inches, and from the heel to the lower part of the neck about 14½ inches.

Missed labour is so rare an occurrence that in this case the diagnosis was not made with certainty until the sound had been passed into the uterus under an anæsthetic; an attempt to pass the sound previously had been unsuccessful. No reason was found why the contents of the uterus should not have been discharged on May 19th, when there was apparently an attempt at premature labour. There was no tumour in the pelvis. The most interesting feature of the case was the necrotic condition of the uterus and its bearing on treatment. The uterine wall, except at the placental site, was exceedingly thin and friable, and incapable of any attempt at contraction or of being manipulated even gently without tearing. Consequently the treatment usually advocated, and that tried in the first instance—viz., the dilatation of the cervix uteri and the clearing away of the contents of the uterus per vaginam, was inadvisable. It appeared that it would have been impossible to deliver the fœtus per vaginam without rupture of the friable uterus. The fact that an emergency abdominal section had to be performed materially increased the length of time under anæsthesia and the shock of the operation. Had an abdominal section been performed first of all the patient would have had a much better chance.

In the *British Medical Journal* of Sept. 19th, 1908, a case of Missed Labour is recorded by Dr. A. Dempsey in which he dilated the cervix and emptied and washed out the uterus. The patient was seven months beyond the normal term of pregnancy. She made a good recovery. The interior of the uterus had a rough leathery feel. Dr. Oldham, on the

other hand, records a case in which the contained mass is said to have worn nearly through the anterior wall of the uterus; and in Sir James Simpson's case, in which the patient died three months after term, the fœtus having undergone fatty metamorphosis, an opening of the size of half a crown had formed between the transverse colon and the uterine cavity, and the uterine walls were as thin as parchment. Hence although in some cases dilatation of the cervix and delivery of the fœtus per vaginam give the best chance of recovery, yet the danger of perforation of the uterus in other cases is so great that it is necessary, whatever the primary treatment adopted, to be prepared for opening the abdomen. The danger of perforation is no doubt greater when, as in the above case, the fœtus is not disintegrated than when fœtal bones are being discharged per vaginam.

The patient was under the care of Dr. T. Jason Wood, through whose courtesy I am permitted to publish the case.

Bradford.

HYDROA GESTATIONIS.

BY E. WARD, M.D. CANTAB., F.R.C.S. ENG.

So little is known of the pathology, the etiology, or the relationship of this remarkable disease that the following case is worthy of record.

A married woman, an octigravida, aged 26 years, came to see me in December, 1908; at that time she was five months pregnant. She complained of an eruption on both legs which she had noticed for about two days, and which was causing great suffering and loss of sleep from intolerable and continuous sensations of itching, burning, and tingling. She had had the eruption several times before, each time during pregnancy, and told me that it usually took ten weeks to cure; first a red and raised patch would appear, always in the same place, and on both legs; then "water" would form over it in blisters. These would join up to one large blister, and then burst, after which the whole area would become yellow and offensive, and the patient would be confined to the house for several weeks more until healing took place. There was no other complaint made, and the appetite always remained good throughout pregnancy in spite of the suffering and sleeplessness.

I found the patient to be a somewhat stout, but healthy, young woman of florid complexion. Her tongue was clean, her pulse was normal, and I could find nothing abnormal about her except the eruption on the legs. On each leg, commencing about four inches below the tubercle of the tibia and reaching downwards for another four inches, there was a band of reddened skin round the limb. The eruption was roughly symmetrical on the two sides, but whereas on the left side the leg was encircled, except for an area of normal skin one inch across, on the right side the band only extended round for something more than half the circumference. The reddened skin was hot and tense and raised considerably above the level of the surrounding skin. The surface was uniform and of uniform colour. The margin of the band was irregular but well defined and there were some outlying islands of eruption; the upper margin was more regular in outline than the lower. The affected area was not specially tender to touch, but manipulation increased the irritation. The leg was dressed with unguentum zinci benzoatis spread on lint, which was secured in position with a bandage and renewed daily. Small blisters appeared over the surface of the eruption, which later joined together, and in three or four days there was a single bleb of fluid over the eruption on both legs. This was snipped with scissors in the usual way and kept clean, and in 14 days the skin appeared normal again. When seen again on Feb. 26th, 1909, there were numerous marks of scratching over the affected area and some reddened and hard patches, apparently due to a septic infection of the scratches. The patient told me that there had been no return of the eruption, but that the patch of skin on the leg where it had appeared still remained irritable. The pregnancy continued in a normal way.

The *previous history* of this patient, which was fully investigated to throw light on the eruption, was as follows. During a married life of six years and nine months she had had eight children and one miscarriage; there had been trouble with the legs during each pregnancy, including that which miscarried. The patient was married in March, 1902, when already seven months pregnant; the eruption had then been troubling her for three months, starting just before Christmas, 1901. In May, 1902, she gave birth to a male child. In August, 1903, the patient gave birth to twins, female children; from the sixth to the seventh month of pregnancy the eruption began to trouble her. In 1904, again while six to seven months pregnant, trouble began with the legs, and twin male children were born in August, 1904. A female child was born in August, 1905, and this time the legs were troublesome rather earlier in pregnancy. The miscarriage occurred in 1906, but the patient did not remember how far the pregnancy had proceeded, only that she had a rash on the legs as usual. In 1907 a male child was born, and on this occasion the woman thought she had escaped the eruption; it attacked her, however, the days following labour and ran the usual course. In 1908, when pregnant for the seventh time, the eruption first occurred at the fourth month and recovered in due course, only to reappear in the later months of pregnancy.

This history may be tabulated thus:—

Number of pregnancy.	Period of onset of hydroa.	Date of birth.	Sex of child.
1	4 months.	1902	Male.
2	6–7 months.	1903	Female twins.
3	6–7 months.	1904	Male twins.
4	5 months	1905	Female.
5	4 months.	1906	Miscarriage.
6	Puerperium.	1907	Male.
7	Fourth month, relapse at the eighth month.	1908	Female.
8	Fifth month.	Still pregnant.*	

* Since this article was written it has been ascertained that a relapse occurred in the ninth month of this pregnancy, but that the condition improved in 14 days. A healthy male child was born at full term.

The *family history* showed no case of a similar disease in any member of the family, and there were no other diseases in the family. The patient is one of 12, all brought up in rather hard circumstances and yet all living. Her father and mother are both aged 46, her five sisters are aged respectively 25, 20, 18, 16, and 13 years, and her six brothers aged 29, 23, 20, 17, 14, and 11 years.

This appears to be a clear example of the so-called erythemato-bullous type of hydroa gestationis, but there are nevertheless a few remarkable features.

1. The toxins of pregnancy had in this case quite an exceptional opportunity to produce their effects, as the pregnancies succeeded one another so rapidly, yet the eruption first occurred, early in the first pregnancy, as severe as it is now during her eighth pregnancy.

2. The curious localisation of the eruption, in a band round the limbs, and its recurrence in this position, is of interest. The distribution calls to mind the areas of "stocking" anæsthesia met with in hysteria, and reminds us incidentally that we have much to learn about hysteria.

3. A statement of the patient that the eruption showed a tendency to break out late in December each year is partly borne out by the inquiry and is noteworthy. The reason why psoriasis and certain other skin diseases reappear especially at certain times of the year is not yet explained.

4. A study of this case leaves feelings of dissatisfaction with our present method of classifying these skin diseases. The eruption had first the appearance of a giant urticaria, then of dermatitis herpetiformis, then of pemphigus. There seem to be all intermediate grades from urticaria and erythema on the one hand to herpetic and bullous eruptions and purpura on the other. A toxin which causes urticaria in one person may cause pemphigus in another, the eruption depending more on the skin of the patient, perhaps, than on the nature of the toxins. Some people blister more readily than others when burnt, and some people bleed more readily than others; the condition known as epidermolysis bullosa is only an exaggeration of the first type; these people blister with a pathological readiness. It will be with dermatitis herpetiformis just as it has been with osteo-arthritis. The joint changes described as osteo-arthritis are now known to occur from a variety of causes—from senile degenerative changes,

for instance; from chronic sepsis, as from the mouth, the nose, gastritis, constipation, or urethritis; and similar changes also occur in chronic rheumatism, in toxæmic arthritis, and in Still's disease; yet there remains another osteo-arthritis which is probably a specific infective disease. Hydroa gestationis is certainly one of the great group of diseases due to the toxins of pregnancy, but its exact relationship to other forms of dermatitis herpetiformis remains uncertain.

Llanelly.

DIFFICULTIES, DIRECT AND INDIRECT, IN THE DIAGNOSIS AND REMARKS ON THE TREATMENT OF CERTAIN FORMS OF DEAFNESS.

BY RICHARD LAKE, F.R.C.S. ENG.,
SURGEON TO THE ROYAL EAR HOSPITAL.

IN our dealings with unpromising cases of deafness other than those arising during, or as the results of, chronic suppuration of the middle ear we are, no doubt, considerably hampered by matters beyond our control. Amongst the foremost of these difficulties is the fact that we are often misled both in diagnosis and prognosis, either by an error in the interpretation of our testing or on account of the still very faulty and uncertain knowledge of the value of our tests, whether considered separately or in the aggregate. In our private practice we are often at a disadvantage, owing to having insufficient time to test completely and work out the case and to the unfortunate necessity of being expected to give an immediate prognosis, and these things, when coupled with the uncertainty of our methods of treatment, develop a further difficulty, which is that being placed in a position of trust by those who seek our advice it is a question as to how long we are justified in keeping them under observation.

In hospital practice there is, I suppose, no branch of medicine or surgery wherefrom any one class of patients derives greater benefit than that which is afforded, by operative or other treatment, to those suffering from suppurative conditions of the middle ear and their sequelæ; but, on the other hand, there is no class of hospital patients whose treatment is so inadequate as is that of those who suffer from perversion of hearing or deafness resulting from any other cause. For we are prepared to acknowledge that it not infrequently taxes us beyond our ability to give an accurate diagnosis and prognosis in similar cases in our private consulting-rooms, where at least 20 minutes, and often double that time, is devoted to investigation; and how, then, is it possible that in a hospital out-patient room, with its hurry and bustle, we can devote, one may say, even a tithe of the requisite time to each case that comes before us? For to be able to test a case properly it is necessary that much patient study and practice has been devoted to obtaining the requisite knowledge, and the greater the difficulties appearing in any given case, the greater is the necessity for quiet, and the more important it is in the interests of the patient that, comparatively speaking, time should be no object. It necessarily follows that a considerable part of this testing, if it is done at all, must be delegated to others, who may, without disparaging their assistance, be acknowledged to be wanting in that experience to which we have alluded. When to these difficulties is added the frequent inability on the part of hospital patients to grasp intelligently what is required of them, the strain and difficulty attendant on the work are greatly increased. Besides this, most of our important tests have to be considered as dealing with a dual individuality, as a comparison has frequently to be made between the tester and the tested, and very slight inaccuracies—whether they be due to inattention or what not—on the part of the examiner will give rise to errors. Nor does the importance of the personal element stop here, for there is no doubt that in testing low notes—that is, notes from the lower part of the scale towards the higher—these notes are capable to a certain extent of stimulating a sluggish auditory nerve, and so giving the slight fictitious impression of fair hearing when the upper notes are reached, and the striking of a fork in such a way as to produce over-tones may enable a patient who would be unable to hear the fundamental tone to hear the over-tone, and thus give rise to an error which may be of considerable importance from the point of view of prognosis. This matter of stimulating a sluggish nerve is perhaps most easily observed when using the Galton-Edelmann whistle, for if the tones are tested from above downwards, and a note is kept of the first tone which is heard, and then the process is reversed, it will be found that the patient is usually able to hear an appreciably higher note than that previously noted.

It often happens that some of our most interesting cases are those which for some reason or other have a claim on our services, and in this instance the financial side of the matter is eliminated, and therefore treatment may be continued for a longer period. It is from these cases, and not from our hospital practice, that we can acquire the most useful experience.

How are we to get over all this? We have practically no endowed chairs for the study of medicine in this country, and it therefore follows that all the aid we can hope for must come from the work we do and the results we obtain. My purpose, however, is not to give vent only to regrets, although it did seem necessary that I should explain, even at some length, a few of these contributory causes to our difficulties in the way that they appeal to me, and some of the reasons for our slow progress; although the most pessimistic amongst us must admit that we are no longer dependent upon the continental schools for our teaching of otology, and that much good work is being done in the British Islands.

This brings us exactly to the question of what we mean by unpromising cases of deafness, for these are the ones I allude to, and I think we may thus classify them: 1. Cases of slight unilateral paracusis or disturbance of hearing, in which no abnormality or departure from the normal can be detected in the tuning-fork tests, but only a diminution in the distance at which a whisper is perceptible. These cases are not improved by inflation, and they are in my opinion due to early nerve lesions, in which there is more or less loss of perception for fine and distant tones, which is only to be detected by whispering with residual air. 2. Cases of well-marked deafness with a double negative Rinné (Group ζ of my classification) with fixation of the malleus due to cicatricial changes within the middle ear, subsequent to previous inflammatory attacks, acute or subacute. These come under the heading of what is known as chronic dry catarrh of the middle ear in its most intractable form. 3. Cases of otosclerosis (Groups δ and ζ of my classification) usually associated with tinnitus or vertigo or both. 4. Deafness, &c., due to arterio-sclerosis.

Now as to the treatment of these various classes, it is unfortunately true that the first class seems to be very intractable, but this is one of the forms of deafness in which electricity offers some hopes of amelioration. With regard to the second group, it should not be included with those cases to which we have alluded here as unpromising unless the usual methods of treatment employed in such cases have failed to afford relief—that is to say, inflation of the middle-ear and the use of drugs, together with careful attention to nasal hygiene, including, if necessary, any operative measures indicated. There are certain tests which should be employed in these cases in order to obtain the most accurate information possible as to the condition of the ossicular chain. Thus by the use of Gellé's test we may be able to demonstrate that the stapes is freely mobile, although unfortunately we cannot ascertain with certainty by this method when the stapes is fixed. In these cases also it is very important that a careful investigation as to the mobility or otherwise of the malleus be undertaken. Thus in the second group, if the malleus is found to be immobile, whatever information we may derive from Gellé's test as to the condition of the stapes, one should proceed with that form of treatment which is most likely to restore its mobility, and it is in this class of case, if one is able to restore mobility to the malleus, that good results are to be obtained, for its mobility appears to have a distinct effect on the loss of hearing.

In the first place, otomassage should be employed and should this fail to give the necessary relief one may then,

I think, proceed immediately to more drastic measures directed to the malleus itself, or one may try the effect of a hypodermic injection of fibrolysin or the internal administration of thiosinamin. The more drastic measures alluded to are attempts to directly mobilise the malleus by means of a steel probe cut to receive the short process and protected either by a small piece of cotton or guttapercha. Either a general anæsthetic is administered or the part anæsthetised by Neumann's method and the malleus forcibly mobilised. In doing this the external ligament is ruptured and the shortened tendon of the tensor tympani is able again to come into play. Inflation and otomassage should be regularly employed for some little time after the mobilisation has been accomplished. I have employed this method now for a considerable time and have obtained some most excellent results in cases which otherwise seemed doomed to life-long deafness.

In the third group, that of otosclerosis, there are certain cases, indefinite in number, but all too few, and yet a proportion which must not be neglected, in which, though from the very nature of the disease cure is impossible, a certain degree of relief may be afforded, and this improvement is often sufficiently marked to be a source of gratification to the patient. It is to be obtained by the use of the otomasseur, and the greater the number of revolutions per minute the greater the improvement. The exact rationale by which this improvement is obtained is certainly obscure, but it is most probable that it largely increases the blood-supply of the part, and has somewhat the same effect as that resulting from the employment of Bier's method of local congestion. In combination with this form of treatment I frequently inject a few minims of a fluid ointment containing 1 per cent. of red iodide of mercury. The ointment has great advantages over a solution, because one is able to use it stronger, it remains longer in contact with the part to which it is applied, and it does not lead to destruction of tissue. Occasionally quite brilliant results follow this treatment, and it also possesses the advantage that one is usually able in a very short time to demonstrate clearly either its utility or the reverse.

As regards the employment of otomassage, the best results seem to be derived from machines which will produce a high rate of velocity, up to 15,000 or 20,000 vibrations per minute. In fact it seems to me that we can consider the minimum pace as regards the number of vibrations per minute from which good results may be expected in cases of otosclerosis not to be less than 2000. It is no doubt difficult to lay down precise rules as to the time at which the otomasseur should be employed, but one may say this, that if there is any uncertainty as to the fitness of the case for its employment, half a minute should be the maximum time to commence with. One may say with decision that it is useless, if not positively harmful, in almost all cases where the Rinné test is positive and always where there is suppuration of the middle-ear, although I have seen patients so treated in whom one or other of these conditions was present. Where the Rinné test is positive, if this method of treatment be employed, the deafness will be increased and tinnitus may be induced unless, as given later, with a fixed malleus.

As there seems to be a considerable want of definite rules as to the employment of this valuable mode of treatment one may briefly enumerate the more important ones. Fixation of the malleus is at all times an indication for its use, though if there be a positive Rinné it must be very carefully employed and for more than 15 seconds at the commencement. Any tendency to giddiness, deafness, or tinnitus should be immediately noted and if necessary the treatment entirely suspended. This is the only instance in which a positive Rinné admits of the employment of the otomasseur. All cases of otosclerosis demand its employment. The main point to bear in mind is that if it is possible to act upon a mobile stapes otomassage will do harm and not good, except in those cases where the malleus is so fixed that no movement is imparted to the stapes, although it were otherwise capable of mobility. The rôle played by fixation of the malleus in cases of intractable forms of deafness of only moderate severity is very large as we have stated, and if its mobility can be restored quite excellent results follow in a large number of cases. As has been stated earlier in this paper, it is important that these cases should be seen from time to time in order to prevent re-fixation or recurrent ankylosis.

With regard to the final groups with arterio-sclerosis, in the very earliest stages good results may be expected from treatment, and in the somewhat later stages considerable relief may be afforded. This, however, is not obtained by means of aural therapeutics, but the cases should be transferred for treatment to the physician. If, as seems possible, otosclerosis has a definite connexion with rheumatoid arthritis, the newer forms of treatment which are suitable for that disease may possibly aid us in the earlier stages of this condition.

In conclusion, it is well to state emphatically that in all but the second group of cases under consideration no operative procedure whatever appears justifiable. In fact, it seems to me that to recommend such procedures shows an ignorance so grave that it is difficult to put the matter sufficiently strongly.

Harley-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF HAIR-BALL IN THE STOMACH.

BY G. P. NEWBOLT, F.R.C.S. ENG.,
AND
R. A. JONES, L.M.S.S.A. LOND.

ALTHOUGH a number of cases of hair-ball in the stomach have been recorded by different observers they can hardly be described as common. At the same time it is well to bear in mind the fact that they do occur when dealing with abdominal tumours situated in the epigastrium in young females. Knowsley Thornton, in THE LANCET of Jan. 9th, 1886, describes a successful case, the second on record. In 1895 Paul Swain describes a third, and they occur at intervals in the literature after this date, but the majority of those described have been found post mortem. Although common in animals, in which the hair tends to "felt," the mass becomes ball-shaped, whilst in the human subject the hair takes the shape of the stomach and remains in a comparatively loose condition. In many of the patients there are indications of insanity, but not in all. One girl is described as bright and intelligent, and in my own case the girl was to all appearances quite sane. If not removed the tendency is for the mass to cause ulceration and perforation or vomiting and death from exhaustion. In a case described by Dr. H. Mallins the ulceration had exposed the pancreas and also the transverse colon. The diagnosis has to be made from splenic tumour, retro-peritoneal sarcoma, pancreatic cysts, and tuberculous glands, but the most important information to get is the early history with regard to eating hair, string, &c. In Swain's case the mass weighed 5 pounds 3 ounces, the largest on record, and the stomach incision was six inches long, the mass was broken up before removal, and the stench was very offensive.

In August, 1908, whilst on a holiday in North Wales, I (G. P. N.) saw a young woman, a dressmaker by occupation, in consultation with Mr. R. A. Jones of Menai Bridge. She was 22 years old and had been ill for about 12 months, complaining of pain in the epigastrium and back, together with flatulence and constipation. Occasionally the pain was relieved by lying down. She had to lie in bed from October until December, 1907, on account of these symptoms, and during this period she lost flesh. There was a history of her having swallowed a piece of string half a yard long before the commencement of this illness. When doing her hair she was in the habit of putting the ends of some of the plaits into her mouth. She had also swallowed some bits of cotton. The girl was not hysterical, but was very anæmic. In December, 1907, she passed a ball containing hair and a piece of string with some bits of cotton, but as her symptoms continued she went into a hospital in May, 1908, for treatment, but only remained there for some ten days, after which she returned home. On examination I found her to be a very anæmic girl, complaining of dyspeptic symptoms and unable to take much food on account of pain. In the left hypochondriac region extending across the median line to the right was a large moveable abdominal tumour. It

was smooth and flat on palpation, painless to the touch, and moveable from side to side. Apparently it was in connexion with the stomach but its exact nature was not diagnosed. An x ray photograph taken after the administration of bismuth showed a beautiful picture of a tumour occupying the whole of the stomach area and extending into the duodenum.

On Sept. 29th, the patient being under ether, the mass could be moved freely about the abdomen, but lay on the left side opposite the umbilicus when not disturbed. It felt quite solid and hard. A free incision was made in the left linea alba and the abdomen opened in this situation; the stomach at once came into view, and on examination it was evident that the tumour consisted of a mass contained in the stomach itself. The organ was brought outside the abdomen and packed around with gauze; a transverse incision was made from the lesser curvature across the stomach to the greater curvature and a mass of hair was exposed. After its removal the incision was closed with two layers of suture, one taking all the coats of the stomach and the second (a Lembert) taking the peritoneum. Some adhesions at the cardiac end were dealt with and the abdomen was closed. The operation was unattended by complications and the patient returned home on Oct. 23rd. Two or three days later she had a severe attack of gastritis and was very ill for some days. I saw her on Nov. 5th when she was better, and later I heard that she was quite well again. The mass removed was composed of black hair and weighed 9 ounces. It was rather offensive to the smell and the portion which was in the duodenum was bile-stained. It was 7 inches long, 3½ inches broad, and 2 inches in thickness.

Osler, fourth edition, says there are 16 cases in the literature and the following are some of those on record (no doubt there are many others):—

Knowsley Thornton, THE LANCET, Jan. 9th, 1886, p. 57; recovery. Schönborn of Königsberg, Langenbeck's Archiv, 1883, vol. xxix.; recovery. Bandemant, Journal de Médecine, vol. ii., p. 507, 1779. Pollock, Transactions of the Pathological Society, 1851-52, p. 327. George May, Medical Association Journal, vol. ix. Russell, Medical Times, 1869. Inman, Medical Times. Best, Brit. Med. Jour., 1869. Sir W. Gull, Transactions of the Clinical Society, vol. iv. Paul Swain, THE LANCET, June 22nd, 1895, p. 1581; recovery. Berg of Stockholm, Nordiskt Medicinskt Arkiv; recovery. E. Percy Paton, Transactions of the Clinical Society, January, 1902; recovery. H. Mallins, THE LANCET, June 6th, 1903, p. 1592. S. S. Rather, Human Hair in the Stomach, Texas Medical Journal, Austin, 1905-06, vol. xxi. p. 358. G. F. Still, THE LANCET, May 16th, 1908, p. 1412; recovery.

A CASE OF WOUND DIPHTHERIA.

BY RANDAL HERLEY, L.R.C.P. & S. EDIN., L.F.P.S. GLASG.,
HOUSE SURGEON, GENERAL INFIRMARY, DEWSBURY.

ON May 21st, 1907, a youth, aged 18 years, struck the corner of a shovel with the back of the left hand whilst "taking a jump" in a field. One of his companions used the shovel for marking the jumps. The wound was a "small hole"; it did not bleed much, and the boy dressed it with adhesive plaster. On June 16th he complained of pain in the left axilla, the left hand was swollen, and, acting on the suggestion of a neighbour, a bread-and-milk poultice was applied by the lad's mother. On the 17th he came to the infirmary, and on examination I found a sore on the back of the left hand which in many ways resembled a well-developed anthrax pustule; the hand was swollen and the axillary glands were enlarged and tender. The temperature and pulse were normal; there were no soreness of the throat and very little constitutional disturbance. I sent a swab to the Public Health Laboratory, Wakefield, and received the following report on June 19th:—"No anthrax bacilli could be found in this specimen, either on immediate examination or as the result of inoculating culture media. Typical diphtheria bacilli, however, were present in large numbers." A swab from the throat was examined with a negative result. As to treatment, the wound was scraped, pure carbolic acid was applied, and 4000 units of antitoxin were injected under the skin of the abdomen. The dressing was a boric acid fomentation. The boy was quite well in three weeks. I was unable to trace the source of the infection.

In Osler's "Principles and Practice of Medicine," I find the following:—"Wound diphtheria may occur without demonstrable connexion with cases of diphtheria and without affection of the throat in the individual attacked, but such occurrences are rare."

Dewsbury.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

Gastro-intestinal Crises from Effusion into the Bowel Wall.

A MEETING of this section was held on June 22nd, Dr. S. J. GEE being in the chair.

Dr. G. A. SUTHERLAND read a paper on Gastro-intestinal Crises from Effusion into the Bowel Wall. This is printed in full in this issue of THE LANCET (see p. 1817).

In the discussion that ensued, Mr. ARTHUR EDMUNDS showed coloured pictures and drawings illustrating the case of a boy, three years of age, who was suddenly seized with acute abdominal pain and vomiting. On admission to hospital an indefinite swelling was felt and intussusception was diagnosed. When laparotomy was performed the appendix was found to be hæmorrhagic and was removed; an intussusception was not present. The wall of the appendix was swollen and infiltrated with blood. Mr. Edmunds showed that in cases of spontaneous recovery from intussusception, the site of the intussusception was marked by a pallid œdematous area.

Mr. HUGH LETT observed that in cases of intussusception, which occurred mostly in infants, what guided him in determining on operation was the presence or not of a tumour. In his experience a tumour could be felt in most cases of intussusception.

Dr. SUTHERLAND, in the course of his reply, pointed out that the presence of the pallid œdematous area described by Mr. Edmunds furnished a means of differentiating between a spontaneously reduced intussusception and a case of hæmorrhage into the bowel wall. In regard to the frequency of a tumour being felt in cases of intussusception, Dr. Sutherland thought that Mr. Lett put the incidence of their being observed higher than was generally taught, but the difference was probably due to the methods of examination followed.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.—Congenital Obliteration of the Bile-Ducts.—Congenital Dislocation of the Hip-joint.

A MEETING of this section was held on May 28th, Mr. R. CLEMENT LUCAS being in the chair.

The following resolution, sent up by the Council, was passed by the meeting:—

That in the opinion of this meeting it is desirable that the Board of Education should issue forthwith a complete set of forms for use in the medical inspection of elementary school children, in accordance with circular No. 582 issued by the Board on Jan. 23rd, 1908, and should issue definite instructions to medical officers as to the manner in which the medical inspection shall be carried out.

Dr. F. LANGMEAD showed a case of Facial Irritability of 15 months' duration succeeding tetany in association with dilatation of the large intestine. The girl, aged eight years, was admitted to hospital for tetany in April, 1908. Her facial irritability was pronounced on both sides. No signs of organic nervous disease were found. The colon was dilated. Attacks of laryngismus stridulus occurred. The urine contained indican. The colon was daily washed out, whilst castor oil and salol were given by the mouth. Sauerin, koumiss, and thyroid were also used without effect. The washing out was discontinued and energetic treatment with bismuth and opium applied. Enemata and massage were then used for a week with improvement, and after two months she had gained four pounds in weight and the tetany and laryngismus had subsided. The massage was continued for three months. The signs of dilatation of the colon then disappeared, but the facial irritability had persisted. A month or two ago she had another attack of tetany with vomiting. Dr. Langmead referred to nine cases exhibiting relapsing tetany, dilated large intestine, and unhealthy offensive motions occurring at an age beyond that of the usual infantile tetany. All had died except the patient exhibited. On tapping the cheek of the child an immediate rapid contraction of the muscles on the same side of the face was elicited.—Dr. ROBERT HUTCHISON asked

whether the tetanic condition had ever been observed in congenital dilatation of the colon.—Dr. LANGMEAD replied that the question was as to whether the condition was congenital or not.

Dr. G. CARPENTER showed: 1. A specimen of Hypertrophic Stenosis of the Pylorus removed from a three weeks old female child. 2. A specimen of Morbus Cordis with Complete Transposition, including the liver, spleen, and large intestine; there was also a cyst in the tongue and a solitary kidney. The condition was not diagnosed during life, and no symptoms were observed pointing to heart disease. The child became worse and had fits two days before death.

Mr. CLINTON T. DENT gave a Kinematograph Demonstration of the Movements of the Stomach as seen through the Abdominal Wall in a case of Congenital Hypertrophic Stenosis of the Pylorus. The child was aged eight weeks and weighed 8 pounds on birth and 5 pounds on admission to hospital, 11 days before death. It was not considered safe to operate. The pylorus could be felt distinctly; gastric peristalsis was extremely marked and very easily excited. The kinematograph showed plainly the waves of contraction passing over the stomach. Mr. Dent said that the post-mortem examination showed the whole pyloric canal to be in a state of hypertrophy. The mucous folds were well marked, and he had no doubt were, as is usually the case, the final cause of the obstruction.—Mr. LUCAS expressed the indebtedness of the section to Mr. Dent for his excellent demonstration.

Dr. ERIC PRITCHARD showed a case of Unilateral Hypertrophy of the Hand from Macrocheiria in a boy aged 10 years. The left hand was observed to be larger than the right shortly after birth. A capillary nævus was also noticed to extend in an irregular manner up the arm and down the left axilla. The hypertrophy of the hand appeared to have been progressive, but sometimes it was more swollen than at others. No similar condition had been observed in any other member of the family. The left hand was larger than the right in the ratio of 9 to 5 as determined by displacement of water. The length of the hand from the fold of the wrist to the tip of the middle finger was six inches in the left and five and a half in the right, and the breadth was half an inch greater in the left. The colour was purplish. The hand looked as though it was œdematous, but did not pit on pressure. The muscles appeared to be feebly developed. On x ray examination the bone appeared to be normal. There appeared to be a lymphangiomatous element in the general hypertrophy. Dr. Pritchard regarded the hypertrophy as due to the increased blood-supply dependent on this condition.—Mr. LUCAS agreed that the condition was nævoid.—Dr. F. PARKES WEBER said he thought it was better to class such cases as angioectatic hypertrophy because the hypertrophy might involve the venous vessels, or the arterial vessels, or the lymphatic vessels, or any combination of the three.

Dr. PRITCHARD also showed Symmetrical Helical Fistulæ with Branchial Fistula in an Infant. The case resembled one shown by Mr. J. Howell Evans at the June meeting, 1904. It showed two symmetrical fistulæ at the anterior aspect of the helix of the ear about two millimetres in diameter and the same in depth. At times they both emitted a thin secretion. On the left side of the neck, at about the level of the anterior margin of the sterno-mastoid muscle, was a small depression representing in the usual position the vestigial remains of what was once a branchial cleft. In front of the right ear there was a small nodule or preauricular tubercle. No other stigmata were shown. Similar helical fistulæ had occurred in several members of the family. The mother, who was present, showed them on both ears, and so did four of her children, deceased. The maternal grandmother and two of her sisters also had symmetrical helical fistulæ.

Mr. J. A. ROOTH and Mr. J. HOWELL EVANS showed a case of Conjoined Twins. Mr. Howell Evans said that Mr. Rooth had attended the mother of the twins, but they were born before his arrival. The method of presentation seemed to have been normal, the cephalic position for the first child, the legs of the second child then came down, and the birth was accomplished. They belonged to the type of twins which had survived longer than any other—namely, those joined by the buttocks. The radiograph suggested that they were joined with more than fibrous tissue. Though the female genitalia were complete, there was one common anus, the rectum of the second child opening into the rectal ampulla of the first. The mother was one of twins and there had been other twins in her family. Several members of the father's family had had congenital heart disease. The twins were now about a year old. Conjoined twins of this nature had lived to considerable ages. The only illness suffered had been bronchitis which began in one child. Medicine was administered to both, but in spite of this the second child also had bronchitis. Separation had not been attempted on the ground that the twin which seemed to be weaker appeared to have the greatest amount of alimentary canal.

Dr. G. A. SUTHERLAND showed for the second time a case of Cirrhosis of the Liver in a boy, aged 11 years. Ascites had recurred and 150 ounces of clear fluid had been drained off, since when tapping had been repeated at intervals. He had had seven doses of fibrolysin without any effect at present. Dr. Sutherland asked whether the surgeons could recommend omentopexy, as the case was one of chronic recurring ascites.—Mr. LUCAS asked what Dr. Sutherland thought was the cause of the condition and what was the condition of the heart.—Dr. SUTHERLAND replied that there was no evidence of adherent pericardium. He did not know that syphilis had been excluded, but mercurial treatment as a method of cure had been tried in vain. Still, in advanced cases of syphilitic liver this would be the case. The mother died two years ago from alcoholism, but there was no evidence of the patient having been given alcohol.

Mr. SYDNEY STEPHENSON showed a case of Oxycephaly in a boy, aged 32 days, who was admitted to hospital with ulceration of the right cornea. The right eyeball protruded from between the eyelids immediately after birth. The labour was easy. The eye bulged forth whenever the baby screamed or was bathed. The child weighed 5 pounds, had a red and wrinkled skin, loud "snuffles," and a slight papular rash on the hands and arms and trunk. The skull was typical of oxycephaly, the frontal region rising steeply and overhanging the face. The cranium was deficient as regards total size and capacity. All the bones and sutures appeared to be present. The eyeballs, especially the right one, were prominent though they could still be covered with the eyelids. The orbits were clearly deficient in depth.—Mr. LUCAS said that those interested in such cases as this might like to know that at the Royal College of Surgeons all the abnormal skulls had been arranged in series by the new curator, Dr. A. Keith.

Dr. H. MACCORMAC showed a case of Congenital Laryngeal Obstruction in a girl, aged five months.

Dr. PARKES WEBER read a paper on Congenital Obliteration of the Bile Ducts with Hepatic Cirrhosis. The patient, a boy, aged three months, was admitted to hospital suffering from malnutrition and jaundice of moderate degree. The mother said the child had been jaundiced from birth. No other member of the family had jaundice. The mother had had no miscarriages. The child's liver was enlarged but not tender. The fæces were acholic and rather copious. The urine contained bile pigment and one or two granular casts. Blood examination: Hb, 90 per cent.; red cells, 3,900,000; white cells, 9400. Differential count (made by Dr. J. C. G. Ledingham): Polymorphonuclears, 61 per cent.; large lymphocytes, 26 per cent.; eosinophiles, 3 per cent.; small lymphocytes, 1 per cent. In a month the child had gained one pound and the jaundice began to diminish. The spleen, however, had increased in size, for its lower border could be felt one inch below the costal margin. The improvement then ceased, and after two months in hospital the temperature was frequently raised to 101° or 102°. At the age of five months convulsions set in and the child died. At the necropsy the gall-bladder was represented by a fibrous scar, and the common bile-duct was hardly pervious. These congenital changes were doubtless partly inflammatory in origin, and, as usual, were unaccompanied by congenital defects elsewhere in the body. The hepatic cirrhosis was found to be chiefly of interacinous distribution, and was doubtless to some extent a result of the obstruction.—Dr. H. D. ROLLESTON said that Dr. Weber's case differed from the ordinary run of cases of congenital obliteration of the bile-ducts. The distribution of the fibrous tissue was different, and there was a curious condition about the enlarged glands in the portal fissure in that they were matted together and that there was practically a stricture produced in the portal fissure by an inflammatory condition outside the

ducts. The question arose as to whether it might be a case in which the obstruction of the ducts was produced outside the ducts. The only point against that was the practical obliteration of the gall-bladder. His own belief was that there was no congenital narrowing of the ducts at first, but that from the beginning it was an inflammatory toxic process. This was contrary to the view now held by Dr. Thompson and advocated in America.

Mr. A. RALPH THOMPSON read a paper upon Congenital Dislocation of the Hip-joint, and showed a number of specimens clearly illustrating the points which arose. He put forward the view that the changes associated with pressure or static dislocation of the hip are too frequently regarded as primary and as producing the dislocation, whereas in many cases of congenital dislocation no deformity is noticed until the child begins to walk, and the deformity occurs in well-developed female children in whom the mechanical conditions are more likely to produce dislocation at the time of the adoption of an erect attitude than is the case in males. The changes found are a shallow and triangular acetabulum, a small flattened head of the femur with a short and anteverted neck, deficiency in the iliac segment of the acetabulum and hour-glass constriction of the capsule, a stretched or absent ligamentum teres, and some coxa valga and shortening of the leg below the knee. These conditions could all be explained by considering the mechanics of the joint in children of two to three years. Mr. Thompson gave full demonstrations of these points.—Mr. HUGH LETT said the section was very much indebted to Mr. Thompson for his paper, which had evidently been produced with a great amount of care, and much work had been entailed. The theory he brought forward was very interesting and important. All who had seen cases of congenital dislocation of the hip must have been struck with the remarkable fact that many cases did not appear to have anything wrong until they were three or four years of age. He would like to consider the paper more carefully before speaking very decidedly about it, but there was much, from an anatomical point of view, in what was brought out, particularly in connexion with the fœtal pelvis and the relations of various lines of force in male and female. He believed Mr. Thompson's view would be accepted by very many authorities, and those who did not accept it would be bound to weigh it with great care before putting it on one side.—Mr. LUCAS said that he had been accustomed to point out that when a child had been taken off its walking on one limb from any cause not only the thigh but the foot and all the bones of the limb were shortened as a result of the lack of use. He understood from the argument that as the female was less protected than the male from dislocation of the hip, it was unwise to place the female child on her feet so early as the male child.

EDINBURGH OBSTETRICAL SOCIETY.

Manipulation and Axis Traction.—Peritonitis and Fibroids.

A MEETING of this society was held on June 9th, Professor W. STEPHENSON (Aberdeen), the President, being in the chair.

The PRESIDENT read a paper on the Value of Manipulative Action in combination with Axis Traction in Forceps Cases. He said: In recent times the principle of axis traction has so monopolised the obstetric mind that in some quarters direct traction in the line of the pelvic axis is the sole engrossing idea in instrumental delivery. The object should be to deliver skilfully and with a minimum of force, and this requires other methods to be employed besides simple traction in one line. The main error lay in discarding the use of the ordinary handles and extracting solely by the traction rods. There are two factors, the pelvic walls and the fœtal head. In the system of axis traction as now practised, the attention is concentrated too much on the curve of the canal, the lie of the head is left out of account. Forceps are often required in a normal pelvis due to the unfavourable relations of the head, yet in the latest approved forms of forceps the parts whereby change in position can be facilitated have been rendered worthless for the purpose. Those who discard the handles throw the burthen of effecting the movements of adaptation wholly on pressure between the head and the maternal tissues. In simple cases with normal conditions traction in the pelvic axis is sufficient, but where abnormal conditions are present the necessary movements can be effected with less force and less risk of injury by a gentle manipulative action through the handles than by a strenuous pull in one line. This manipulative action is to favour and to effect, by means of the handles, such movements of the head as experience has taught are necessary in delivery, as flexion, rotation, or a combination of the two. Manipulation does not mean the pendulum action nor twisting an occipito-posterior position into an anterior. Many generally accepted views misrepresent the mechanism of labour. So-called flexion of the head is not rotation on an *internal* axis, but partakes of the nature of a *rolling* of the head on the frontal bone as a pivot by an arrest for the time being of the forehead while the occiput is free to move. The occiput does not rotate in the pelvis into the conjugate diameter and the face into the hollow of the sacrum. In its exit from the bony canal the head lies in the oblique diameter of the outlet, the posterior parietal bone on a lower level than the anterior. From this position the head passes over the perineum, not by extension as usually described, but by a combination of two rotations, the one being the familiar wheeling of the head round the pubes, the other a rotation whereby the long diameter of the head passes from the oblique nearly into the conjugate and the two parietal tuberosities come to be on the same level. To discard the use of the handles is to throw away much valuable information which is transmitted through them to the hand, regarding the command of the blades over the head, whether the hold is good or the forceps are slipping; the hand is quicker than the eye to detect the forward movement that guides the direction of traction. When held properly the grasp should in no way interfere with, but on the contrary aid, the natural rotations; recession of the head can also be aided and too forcible or precipitous expulsion resisted. Thus the hand works intelligently with nature. The special conditions which can be helped by manipulation with forceps were discussed and demonstrated on models, such as that of favouring the rolling movement of the head at the brim and adaptation of the head to the widest diameter of the brim in flat pelvis. He combined the axis traction to the previous form of forceps by applying a hook on the blades above the handles and pulling backwards with it. He considered the older form of forceps much preferable to the axis-traction form.—Dr. A. H. F. BARBOUR was much interested in the details of the manipulations that could be effected by the forceps of Sir James Y. Simpson. The Milne-Murray forceps differed from them in that one could not control the handles in the same way. With the axis-traction forceps the operator literally worked in the dark, leaving the head to find its way through the pelvis by pulling in the line of least resistance. For the ordinary practitioner he believed this latter was the best, but it was very interesting to find that the old forceps could effect the same with skilled manipulation.—Dr. R. G. MCKERRON (Aberdeen) referred to the fact that the President had shown that traction in the axis was not always the best and often required too much energy, and that there were cases where the axis of traction, as indicated by the rods, was not true. Too much attention had been bestowed on the pelvis to the neglect of the position of the head.—Dr. F. W. N. HAULTAIN said that there was no comparison between the old forceps and the axis traction, but the President had stated a good case for manipulation as well as pulling. Labour was the accommodation of an irregularly shaped body passing through an irregularly shaped canal, and during this process two powers were at work, one pressing from above, the other resilience from below. The process stuck at times; then an extra force was needed, or moulding, or manipulation, or adaptation. All would agree that manipulation could do a great deal with traction.—Dr. JAMES RITCHIE and Dr. J. HAIG FERGUSON also discussed the paper, and the PRESIDENT replied.

Dr. JOHN MCGIBBON read a paper on Peritonitis as a Complication of Fibroids, specially in association with Torsion of the Pedicle, with an illustrative case. The patient, aged 31 years, was seized suddenly with violent abdominal pain and vomiting. In 12 hours she showed all the symptoms of peritonitis. The symptoms subsided in ten days. Operation was then performed and revealed a fibroid with twisted pedicle. Noble and Steinbüchel had described similar cases. Gillmore had recorded a case which had been mistaken for appendicitis. Dr. McGibbon decided against immediate

operation at the onset of the symptoms partly on account of the amount of shock present.—Dr. HAULTAIN considered immediate operation always the best.—Dr. BARBOUR did not believe anything could be gained by delay in operating.—The PRESIDENT also discussed the paper.—Dr. MCGIBBON replied.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A general meeting of this society was held on June 11th.—The following officers, amongst others, were duly elected by ballot:—President: Dr. Leonard Williams, London. Vice-Presidents: Dr. Charles Begg, Bath; Dr. Samuel D. Clippingdale, London; Dr. T. F. Gardner, Bournemouth; Dr. W. R. Huggard, Davos Platz; Dr. W. Black Jones, Llangammarch Wells; Dr. Percy G. Lewis, Folkestone; Mr. A. L. Mackenzie, Bath; Dr. F. A. de T. Mouillot, Harrogate; Dr. F. M. Sandwith, London; Dr. Ernest Solly, Harrogate; Mr. G. Hobson Thompson, Buxton; and Dr. Christopher Vise, Tunbridge Wells. Chairman of Council: Dr. Alfred F. Street, Westgate. Honorary Treasurer: Dr. R. Fortescue Fox, London. Librarian: Dr. Harry Campbell, London. Honorary Secretaries: Dr. Septimus Sunderland, London; and Dr. Mouillot. Dr. W. J. Tyson (Folkestone) and Dr. A. F. Street (Westgate) were appointed scrutineers, and Dr. A. Morison and Mr. Ernest Clarke were appointed auditors for the past session.—The report of the council for the past year was received and adopted. The question of amalgamation with the Royal Society of Medicine was discussed, and it was resolved that the meeting approves the recommendation of the council that the society shall become in October next a section of the Royal Society of Medicine.—An ordinary meeting was then held, at which Sir James Barr (Liverpool) delivered an address entitled, "The Peripheral Circulation and its Treatment."

Reviews and Notices of Books.

Oxford Medical Publications: A System of Diet and Dietetics. Edited by G. A. SUTHERLAND, M.D. Edin., F.R.C.P. Lond. London: Henry Frowde and Hodder and Stoughton. 1908. Pp. 893. Price 30*s.* net.

THE subject of diet, both in health and disease, is one upon which it is most essential that the practitioner of medicine should be thoroughly well informed. A practical treatise on this subject should, therefore, always be welcome. Dr. Sutherland in his preface points out that until our knowledge of physiology is more perfect than at present the scientific basis of dietetics must be an unstable one; but that since patients must be dieted, practical experience, controlled by such scientific information as is obtainable, must be relied on. He has accordingly chosen his collaborators because of their special experience of the subjects entrusted to them, and the articles contributed by them represent their own views and practice, and not a compendium of the opinions of different authorities, although these are in many instances included and discussed.

Sir Lauder Brunton contributes an introductory chapter on general principles. The nature of various diets, the effects of cooking, the uses of condiments and stimulants, the processes of excretion and metabolism, are briefly considered. Dr. Harry Campbell follows with an interesting and learned article on the evolution of man's diet. From a study of the changes in diet in the Primates he separates certain periods, and traces the evolution of hunting, cooking, and eventually of cibiculture, and shows the effects these have had upon the nature, quantity, and condition of man's food materials. Dr. E. I. Spriggs gives a clearly written and scientific account of the physiology of digestion, absorption, and nutrition, which is more up-to-date than the usual chapter of this kind in works on dietetics. His description of the digestive processes includes an account of the various ferment actions and of the mechanisms by which they are brought into action, including the hormones. He also discusses the formation of the amino-acids as the final products of intestinal digestion and the manner of their metabolism, including their reintegration into tissue proteins. Dr. Spriggs also contributes a chapter on the results of experimental work on diet. The physiological heat values are given, the question of protein requirement is considered, and various diet scales are analysed. The chapter as a whole gives an interesting *résumé* of the scientific principles of dietetics.

Dr. Edmund Cautley writes of diet cures and special diets, of patent and proprietary foods, and of the invalid's dietary. The various special diets are described with their uses and with sufficient detail to render it practicable to prescribe them. He notes the treatment by butter-milk and by lacto-bacilline, and gives details with criticism of vegetarian, fruitarian, and other dietaries. His chapter on patent and proprietary foods contains a useful classification and gives analyses of the most important, many of which are quoted from THE LANCET. In regard to the invalid's dietary, he gives directions for the preparation of various food substances which should be very useful. The subject of the use of alcohol in health and disease is discussed in a critical and temperate manner by Dr. Harry Campbell, and his recommendations are practical and free from bias. The chapter on artificial methods of alimentation by Dr. Francis D. Boyd, containing full accounts of rectal feeding and of the subcutaneous administration of food substances, is one worthy of special note. The value of these procedures is critically analysed, and the results of special researches conducted by the writer are included. Dr. Claude B. Ker discusses diet in fevers. Special attention is given to the various diets which have been employed in enteric fever, and full details are included of the modification necessitated by the complications which occur, and also of the diet in convalescence. The diet in tuberculosis is dealt with by Dr. N. D. Bardswell and Mr. John Ellis Chapman. The general principles underlying the construction of diet scales for patients suffering from pulmonary tuberculosis are enunciated, and various diets are given with their caloric values, including special forms adapted to the requirements and resources of the leisured and working classes respectively. The diets adapted to various complications such as laryngeal tuberculosis, hæmoptysis, anorexia, and diarrhœa are also given.

Dr. A. P. Luff gives practical and explicit directions regarding the important subject of the diet in gout, rheumatism, and rheumatoid arthritis. Dr. J. Rose Bradford indicates the general principles for the differentiation of the different varieties of diabetes and for the choice of a diet best suited to each. The question of the degree to which carbohydrate foods may be permitted and the selection of the various articles of diet are carefully described. Obesity is discussed by Dr. Edmund Cautley. Numerous special diets are given in detail, and the chapter affords a useful study of the dietetic restrictions recommended in the treatment of this condition. The diet in arterio-sclerosis is dealt with by Dr. Harry Campbell. The difficult subject of diet in diseases of the stomach and intestines receives careful consideration in the two articles contributed by Dr. Herbert P. Hawkins, whose classification is convenient. Here the directions given in regard to the appropriate methods of feeding in gastric and duodenal ulcers, in mucous colic, and in constipation are all worthy of mention from their practical nature and from the clear and explicit manner in which they are set forth. Dr. W. Hale White gives an account of diet in diseases of the liver and pancreas, special stress being laid upon the best methods of feeding in cases of jaundice and of gall-stones. Diet in diseases of the lungs is described by the editor, Dr.

G. A. Sutherland, who devotes a considerable proportion of his article to a discussion of the use of alcohol in the treatment of pneumonia. He assumes that the commonest cause of cardiac failure in pneumonia is poisoning and paralysis of the medullary centre, and that alcohol is, in the majority of cases, a stimulant of that centre. He admits that these are assumptions, and states that the clinical experiences of many observers support them. The article on diet in diseases and disorders of the heart by Dr. W. J. Hadley, and that on diet in diseases of the blood and blood-forming organs by Dr. John M. Cowan both afford practical and explicit directions in regard to these conditions.

Dr. Rose Bradford contributes an interesting chapter on diet in diseases of the kidneys. The influence of diet upon renal activity and upon the character of the urine is carefully outlined, and stress is laid upon the importance of regulating the intake of salt in renal disease, as well as that of the proteins. In the diet of acute nephritis the use of milk and of salt-free foods is recommended, while fruits and fruit juices are permitted. In chronic nephritis the disadvantages of an exclusive milk diet in some cases are set forth, and some useful practical directions are given as to the employment of eggs and even poultry, meat, and fish. Similarly in the albuminuria which persists after an attack of nephritis and in the so-called functional albuminurias limitation of the dietary is deprecated. Dr. Bradford's article is thoroughly interesting and useful. Dr. James Taylor treats of diet in diseases of the nervous system, Dr. T. Colcott Fox of diet in diseases of the skin, and Dr. Harry Campbell of diet in old age.

The important subjects of the feeding of infants and children in health and of diet in the diseases of children are dealt with by Dr. G. A. Sutherland in a manner wholly admirable. Careful and full directions are given in regard to breast-feeding and artificial methods of alimentation. We note here that Dr. Sutherland recommends the use of an ordinary feeding cup with a large rubber teat attached to the end of the spout in preference to any form of feeding bottle, but we fancy that nurses could find a practical objection to this advice. An instructive article on diet in the diseases of hot climates by Sir Patrick Manson and Dr. C. W. Daniels concludes the volume, to which a useful index is appended.

This System of Dietetics is one we can commend as thoroughly practical, and one which fulfils the objects expressed by the editor in his preface. It gives the results of actual experience rather than of purely theoretical speculations, and it affords directions in regard to actual diet scales in a manner easy to apply.

The Faith and Works of Christian Science. By the Author of "Confessio Medici." London: Macmillan and Co. 1909. Pp. 242. Price 3*s.* 6*d.* net.

THIS excellent little book is written without doubt by a medical man who is at the same time a loving student of literature and of philosophy. In the preface he states that the recent publication of the books of Mr. Lyman Powell and Mark Twain on "Christian Science," and the growth of the Boston Emmanuel Church movement as described in "Religion and Medicine" (recently reviewed in our columns[1]), give evidence that in America the Church of Christ Scientist is passing from consolidation to disintegration. In the ensuing chapters the author discusses the various aspects of "Christian Science"—its philosophy, its attitude towards Christ, the reality of diseases and of pain, the testimonies of healing and the opposing testimonies, and the attitude of common-sense and of authority towards "Christian Science." The chapter on philosophy is written by one who knows something of philosophy, and who is therefore competent to show the extravagant vagueness and looseness of thought which Mrs. Eddy's followers in their ignorance believe to be genuine philosophy. Every first-year student of metaphysics will recall the exaltation and joyous wonder which pervade his being when he first learns of the unreliability of the senses, how the whole world appears to dissolve into a mist of unreality, how ineffably superior he feels to the man in the street who has never heard of Subject and Object nor considered Mind and Matter from the metaphysical standpoint. Every student of philosophy can detect Mrs. Eddy's failure to grasp the subject, how she is entangled in obscure phraseology which is unintelligible nonsense to the genuine student, but to the average mind appears pregnant with infinite meaning. We can understand its attraction for those who are ignorant of philosophical terms. As the author states (p. 25): "The old antagonism between the materialist interpretation of consciousness and the transcendentalist has mostly been upheld by the combatants who thought hard and used words with some regard for their meanings. Christian Science has got hold of the words, but not of the meanings."

In Chapter VI. the testimonies of healing which are quoted by the author have the customary vagueness, the absence of definite and authenticated medical diagnosis, which we are accustomed to find on endeavouring to trace the cure of a so-called organic disease by psychical means. Every practitioner knows the weird descriptions given even by patients of the educated classes of the diagnosis and advice given them by their previous advisers. These are not necessarily always false or foolish, for the medical man in seeking to explain to the patient has to employ non-medical terms, which may convey an erroneous idea of his meaning. The chapter on Opposing Testimonies is the most important in the book, for in it the author analyses from the medical standpoint several of the great cures claimed by "Christian" science, and shows how worthless they are from the point of view of truthful science, and also gives a list of 68 black cases, cases of failure, of injury, and of death due to "Christian Science," all of which were collected from various medical men within a few short weeks. In the chapter on Common-sense there is a strong plea for the children which should stir the heart of every parent. "Common-sense cries, For God's sake leave the children alone. ..... For their bodily safety children must believe in the reality of injuries, disease, and pain. ..... Is it fair to tell a child that pain is not real? ..... Christian Science says that she teaches children to be singularly fearless. The reader can decide the worth of this defence."

The writer, moreover, shows his breadth of mind by admitting frankly the field of usefulness occupied by "Christian Science" in helping to improve the lives of "a multitude of men and women. Outside the intense cases of nervous mimicry and neurasthenia ..... are cases innumerable, circle beyond circle, of pleasanter people, many of them blessed with lives of singular refinement, who are the better for Christian Science." They become improved in mind and body because they have, in this busy hurried age, learned how to rest, to be at peace. Mrs. Eddy has popularised by her wide organisation of teachers the great truth taught so long ago, the necessity of rest in the Infinite. That one truth will survive when her doctrines of self-assertion and negation of matter will have passed away, as all false doctrines do. "Christian Science" has had a wider popularity than the other rival mind-healing sects in America, simply because of Mrs. Eddy's power of organisation. Day after day the pupil has to read the new "bible" without question or discussion, has to listen to public readings of the same bible, also without discussion or

[1] THE LANCET, Feb. 13th, 1909, p. 469.

comment. Gradually the pupil is, as it were, hypnotised; he cannot escape from "Christian Science" unless serious disease attacks him. But there are millions of equally happy, healthy, godly people who have attained to their happiness, health, and virtue by more charitable, humble, and truly spiritual means, by daily study of the true Bible, and true philosophy. Medical men of to-day have recognised the wisdom of dealing with certain harassed, restless patients by insisting on a daily time for quiet meditation and reading of selected books.

Every medical man should read this little book. In these pages of kindly wisdom and shrewd logic they will find answers to the questions so constantly put to them by patients who are inclined to substitute for faith in scientific therapeutics faith in every ignorant and self-seeking "mind-curer."

Surgical Diseases of the Abdomen: with Special Reference to Diagnosis. By RICHARD DOUGLAS, M.D., formerly Professor of Gynæcology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville. Second edition, revised and enlarged, edited by RICHARD A. BARR, B.A., M.D., Professor of Abdominal Surgery, Medical Department, Vanderbilt University. Illustrated by 20 full-page plates. London: Rebman, Limited. 1909. Pp. 897. Price 26*s.* net.

THIS is a practical text-book on an important subject. The thoroughness with which Dr. Douglas carried out the writing of the first edition necessitates few changes in the original text in the second. The text has been preserved practically intact and apparently no additions have been made to the bibliographical references at the end of the articles on the various subjects since 1903. The sections dealing with peritonitis, and especially tuberculous peritonitis, are particularly interesting and are well written; we should have appreciated, however, a fuller description of the advantages of vaccine-therapy in the case of tuberculous peritonitis, important work at which subject we know to have been done in America. Intestinal obstruction is also well dealt with, and the section relating to surgical interference in the case of perforating intestinal typhoid ulcer provides considerable food for thought, notwithstanding no reference to literature is put forward in the table of bibliography at the end of the section of a later date than 1901. In the sections dealing with penetrating and gunshot wounds of the abdomen and the different abdominal viscera respectively, we regret that no reference has been made to the reports, official and otherwise, relating to the South African war (1899–1902) and the Russo-Japanese war, the literature of which somewhat revolutionises the aspects of modern gunshot surgery caused by small-bore missiles when contrasted with the wounds inflicted by firearms of the nature of those used in previous wars. While several sections are devoted to pelvic organs and pelvic conditions, such as the bladder, uterus, ovaries, ectopic gestation, &c., no reference is made to any of the surgical diseases of the rectum, which is the more odd that in this section of surgery America is by no means behind the times.

The work is well illustrated and the type is good. The index is very satisfactory—always a matter of considerable importance in a large book of reference. We regret that more reference has not been made to recent work in abdominal surgery, but to those who have not read the previous edition we consider the work likely to be very useful, especially to medical practitioners who wish to have a full account of the diagnostic conditions that may require expert surgical assistance.

LIBRARY TABLE.

"The Modern Mother": a Guide to Girlhood, Motherhood, and Infancy. By H. LAING GORDON. London: T. Werner Laurie. 1909. Pp. 270. Price 6*s.* net.—The title of this volume is a little unfortunate. To the reviewer who has had to read many works on this subject it foreshadows either the unwholesome sentimentality or the mass of fads which so often ruins this class of handbook. Dr. Laing Gordon, however, takes a wholesome, simple view of the aim of womanhood, which is "to see a girl become a successful wife and mother ..... it is impossible to set up a higher ideal, or a more natural or pleasanter object in life"; and the lines upon which his advice is directed are indicated broadly by his warning against the difficulties encountered in the modern maze of "scientific gymnastics, physical culture and anti-uric dietary, massage vibration," on one side, and "the simple life" on the other. On the subject of exercise lawn tennis is selected as the summer game *par excellence* for girls, and, in our opinion, open winter courts might be established in many good-class schools to the exclusion of hockey. Young girls, under 12 years old, should, in Dr. Laing Gordon's opinion, not be allowed to bicycle or only to ride under strict supervision. All Dr. Gordon's remarks on dress will not meet with complete approval; we fail to see the reason for his preference for knickerbockers over woollen combinations; the latter are much more readily washed and do not produce the same amount of ecthyma and allied forms of pyodermia which are often seen in quite "smart" schools. In considering the burning question of stays the author defends them as a working compromise; he maintains that they have their uses as a support and help to preserve graceful contours; he is quite alive, however, to their evils and abuses. His treatment of the point illustrates the general breadth and common-sense which distinguish the book. The chapters on marriage and motherhood are discreetly and well handled, and so are those on infantile hygiene. In the light of Mr. John Burns's recent diatribes against infant comforters, it is refreshing to find the criticism "that the sight of a comforter in a baby's mouth is invariably a sign of weakness of character in his protector." The "medical" chapters dealing with the diseases of childhood are admirably direct and simple and are not calculated to make mothers believe they are qualified specialists in children's diseases after their perusal. We should have liked to see a little more stress laid on the care of the eyes in childhood and a little closer detail as to the recognition of errors of refraction by parents. The worst chapter in the book is that on the mental and moral training in early childhood. In much of its composition there is undoubtedly what the immortal Charles Lomax would call "a certain amount of tosh."

University of Pennsylvania: Contributions from the William Pepper Laboratory of Clinical Medicine. No. 6. Philadelphia. 1907 and 1908.—This volume contains a number of reprints of important papers emanating from the workers in the William Pepper Laboratory. They are too numerous to mention individually although they are all of interest. Dr. David L. Edsall and Dr. Ralph Pemberton describe the use of x rays in three cases of unresolved pneumonia. They find rapid clearing up of the signs of consolidation. They are careful to warn us against using x rays where there is marked fever or other evidence of toxæmia, and they admit that the number of cases is too small to admit of any positive conclusions. The same authors contribute a paper on the General Toxic Reaction following Exposure to X Rays. Dr. William Pepper and Dr. Verner Nisbet give details of a case of Fatal Hæmolysis following Direct Transfusion of Blood by Arterio-venous Anastomosis. Dr. William R. Nicholson and Dr. Joseph S. Evans contribute an interesting account of the Bacteriology of the Puerperal Uterus. They find that the uterine lochia are sterile in normal cases throughout the puerperium and that streptococci are never present within the cavum uteri without causing symptoms

Dr. Samuel M. Hamill, Dr. H. C. Carpenter, and Dr. Thomas A. Cope discuss the von Pirquet, Calmette, and Moro tuberculin tests in an interesting paper reprinted from the *Archives of Internal Medicine*. Dr. R. S. Lavenson gives an account of the post-mortem appearances in a case of congenital obliteration of the bile-ducts with cirrhosis of the liver. In opposition to the views of Dr. H. D. Rolleston, he regards the obliteration of the bile-ducts as the primary condition and the cirrhosis as a result of the consequent biliary stasis. He gives a useful bibliography. The same author contributes an exhaustive study of a case of aplastic anæmia, which he regards as a variety of progressive pernicious anæmia. Dr. Benjamin A. Thomas discusses the variability and unreliability in the determination of the opsonic index. He concludes that the percentage index of phagocyting leucocytes of Simon is of more value from the practical standpoint than Wright's phagocytic index. The character of the papers in this volume is of a high order, and it forms a valuable record of good original work.

Livingstone College Year-book, 1909.—The Year-book of Livingstone College for 1909 contains Rules of Health for Missionaries in the Tropics, drawn up at the instance of the Association of Medical Officers of Missionary Societies, and these contain, in a very small compass, information which is needed by all Europeans going to the tropics as to the preservation of their own health. These rules are absolutely up to date, based upon the most recent researches in the subject of tropical hygiene, and should prove of value. There is also a careful *résumé* of a year's progress in tropical medicine, including interesting particulars concerning the Sleeping Sickness Bureau, and the latest suggestions as to treatment. There are also notes on outfits, based upon the exhibit of outfits now being held at the Royal Agricultural Hall, entitled "Africa and the East," news from Livingstone College students, showing the way in which medical and surgical knowledge gained at the College has been put to practical effect, and some interesting cases.

JOURNALS AND MAGAZINES.

Proceedings of the Royal Society of Medicine. Vol. II., No. 7 (May, 1909). London: Longmans, Green, and Co. Price 7*s.* 6*d.*—The Section for the Study of Disease in Children, which opens this number, contains a valuable paper by Mr. N. Bishop Harman on the Effects of School Life upon the Vision of the Child, founded upon an extensive experience of the ocular defects of elementary school children in London. Mr. Harman's conclusions are more hopeful than have been recent pronouncements on the same subject. He considers that in general the eyes of London school children are in a very fair condition, especially in comparison with the reported state of the children's eyes in German schools. By far the greater proportion of visual defects are due to hypermetropia and its associated astigmatism, which the author shows reason for believing to be "the normal conditions of human eyes." He finds that myopia and the associated astigmatisms occur in less than 3 per cent. of school children. In refutation of the "First Study of the Inheritance of Vision and the Relative Influence of Heredity and Environment on Sight," recently advanced by Miss Amy Barrington and Professor Karl Pearson, Mr. Harman considers the incidence of myopic defects to bear a direct relation to faulty social conditions, such as overcrowding, lack of fresh air and sunlight, as well as to excessively "fine" school-work. He calls these defects the "manufactured" cases of bad vision. To the Neurological Section the same author contributes an account of the "Diaphragm Test" for Binocular Vision, which includes a simple but subtle method of trapping "monocular amaurotic" malingerers. Interesting case reports are contributed to this section by Dr. Wilfred Harris, Dr. G. de B. Turtle, Dr. T. Grainger Stewart, Dr. Gordon M. Holmes, and Dr. Leonard G. Guthrie. The Clinical Section is occupied with cases, including the interesting series of Mongolian idiocy which has been already described in THE LANCET. In the Dermatological Section Dr. H. G. Adamson publishes a photograph of a Mouse with Favus, and cases are reported by Dr. E. G. Graham Little, Dr. T. D. Savill, Dr. J. H. Sequeira, and Dr. A. Whitfield. The chief contribution to the Electro-Therapeutical Section is a description, which we hope to publish, of a Vulvo-vaginal Electrode for Ionic Medication, by Dr. S. Sloan. Mr. T. J. Bokenham and Dr. N. S. Finzi also write on Ionic Therapy, and Dr. Horace Manders describes a therapeutic apparatus for producing continuous oscillations of electricity. The Epidemiological Section is occupied with an important paper by Dr. L. W. Darra Mair, entitled "The Etiology of Enteric Fever in Belfast in Relation to Water-supply, Sanitary Circumstances, and Shell-fish," with a report of the discussion which it evoked. The paper deals with the facts and data contributed by Dr. Mair to the report of the Belfast Health Commission appointed by the Local Government Board for Ireland in 1907. His investigation dealt with the etiology of enteric fever in Belfast, and a very strong case was made out against sewage-polluted shell-fish as a chief agent in the local epidemiology of the disease. The report was discussed fully in THE LANCET last year at the time of its publication. The Laryngological Section is occupied exclusively with cases, and in the Medical Section Dr. O. K. Williamson records some clinical observations on the Influence of the Vessel Wall on (So-called) Arterial Blood-pressure Readings, including a detailed study of a series of cases which lead the observer to the conclusion that the resistance of the vessel wall may influence hæmomanometric readings to a marked degree. Other noteworthy papers in the number are by Dr. Harold Simms, who describes in the Odontological Section a bacteriological research on the Action of Formalin and Other Root Dressings in dental practice, and by Dr. J. Gordon Sharp, whose Experiments and Experiences, Pharmacological and Clinical, with Digitalis, Squill, and Strophanthus, occupy the pages devoted to the Therapeutical and Pharmacological Section.

THE LONDON COUNTY COUNCIL AND SCHOOL MEDICAL OFFICERS.—To fill the vacancy caused by the resignation of Mr. K. M. Hunter (quarter-time assistant medical officer in the Education Department), the London County Council has promoted Dr. F. C. Shrubsall assistant school medical officer at a salary of £150 a year, inclusive of travelling expenses. In consequence of other resignations a rearrangement of the staff of school medical officers has been effected, and in order to carry out the scheme of medical inspection approved by the Board of Education an advertisement has been issued for 26 assistant school medical officers.

SURREY COUNTY HOSPITAL: A NEW CONVALESCENT HOME.—Apropos of the announcement in our columns on Oct. 24th last regarding the gift of Mr. G. P. Shepherd of £10,000 for the purpose of building and endowing a convalescent home at Worthing for patients from the Surrey County Hospital, Guildford, the home was opened on the afternoon of June 18th by the Viscountess Midleton. Above the main entrance of the institution is an inscription stone bearing the following words: "The George Prentiss and Emilie Shepherd Convalescent Home, in connexion with the Royal Surrey County Hospital, Guildford." For reasons of health, Mr. Shepherd, an old Guildford resident, was unable to be present at the proceedings. The home has been constructed in accordance with all the latest hygienic and sanitary requirements and is situated on the eastern sea front of the town. It may be here mentioned that there is another seaside institution in connexion with the Surrey Hospital on the Sussex coast—viz., at Bognor. The Worthing home will be reserved for those recovering from operations.

THE LANCET.

LONDON: SATURDAY, JUNE 26, 1909.

Radio-activity and Cancer.

ANY facts which bear in any way on the question of the mode of origin of malignant disease cannot fail to be of great interest, and they may easily turn out to be of the utmost importance. In the Croonian lectures which Dr. W. S. LAZARUS-BARLOW has delivered before the Royal College of Physicians of London this month he has described a series of experiments which he has been making during the past two or three years on the radio-activity of various substances, and in this way he has thrown a light on the yet unsolved problem of the etiology of cancer. Dr. LAZARUS-BARLOW started with the sinister and deplorable fact that the hands of many of the workers in x rays, true martyrs to scientific zeal, have developed epitheliomatous growths, and it is clear that the x rays have in some way or another led to this appearance of malignant disease. The influence may have been direct, the rays directly causing the development of cancer, or it may have been indirect, the rays merely preparing the tissues for the action of some other truly causative agent. Supposing that the action is indeed direct, the question naturally arises whether the substances which are usually supposed to give rise to carcinoma are also radio-active. These substances are such as clay pipes and soot; and cholesterin also is credited with the power of starting a malignant growth. These and many kindred matters Dr. LAZARUS-BARLOW and his assistants have investigated. He tested the materials in part by their power of affecting photographic plates in the dark, and this property he has called skotographic, a name which is certainly very convenient, though purists might consider it not happily chosen, for photography meaning "writing or drawing by light," skotography should mean "writing or drawing by darkness," an inconvenient term for that form of actinography in which the rays are invisible.

Dr. LAZARUS-BARLOW shows that substances which are associated with malignant disease, such as cholesterin, have a high degree of skotographic power, while others, such as a clay pipe and paraffin, are devoid of it. He has also proved that certain tissues of the human body, such as liver and kidney, show skotographic action, while others, as the spleen and lung, do not; that this skotographic power is greater in the tissues of women, and that it increases on the whole with age is also demonstrated, and our reproductions of his skotographs support his contentions. Carcinomatous material has skotographic power, especially when taken from the bodies of women. The nature of this power possessed by the substances examined somewhat resembles that shown a few years ago to belong to wood and believed to be due to a chemical action, but the skotographic power is also allied to that possessed by recognised radio-active substances. Substances possessing radio-activity have also the power of discharging electroscopes, and Dr. LAZARUS-BARLOW's work indicates that by the use of recognised radio-active substances retardation of the rate of discharge of electroscopes occurs, though physicists may have some difficulty in accepting certain of these results. All forms of radio-activity have also been shown by these experiments to have both accelerating and retarding influences upon the development of the ova of ascaris megalocephala, and thus a new idea is started as to the power of certain tissues to influence the rate of development of animal cells. It follows that in radio-activity we have a possible solution of the phenomena of malignant disease. Radio-activity would suffice to explain the irregular mitoses of malignant new growths; it would explain the lessened formation of pepsin and trypsin in carcinoma, for it has been shown that the activity of these enzymes is much diminished by radio-active influence. It would explain the curability of some superficial cancers, for in many microbic diseases it has recently been proved that the agent producing a disease may be pre-potent in elaborating the remedy. This explanation of the origin of carcinoma would not be opposed to the existence of cancer houses, for some soils or building materials might contain sufficient radio-activity to give rise to carcinoma in successive inhabitants. The idea is not opposed even to a microbic view of the origin of cancer, for the only question would be whether the suggested agent is radio-active or not. It is not incompatible with COHNHEIM'S theory of embryonic rests or VIRCHOW'S theory of mechanical irritation, for the radio-activity would be the underlying force required by each. Attempts to cause cancer by radium and other radio-active substances have hitherto been unsuccessful, though it has been clearly shown that an irregular overgrowth of epithelial cells may be thus produced.

We have found these lectures replete with interest. They record the results of innumerable observations and of an immensity of work. They shed fresh light on an intensely difficult problem, and they supply us with new facts in physics and biology that may one day bear much fruit. Whether we have here the true solution of the mystery of cancer is, however, another question. These observations, numerous as they have been, need repetition and extension, but they will always remain a proof of the excellent work done in the laboratory of the cancer department of the Middlesex Hospital. We appreciate highly the energy, accuracy, and skill shown by these investigations, we value the many new facts brought forward, and we anticipate great results from these investigations into the radio-activity of tissues, whatever may be the outcome of the researches when directed particularly towards affording a solution of the origin of cancer. To the lectures themselves we must refer our readers for a full account of the experiments performed and of the arguments advanced; for it is impossible to summarise them satisfactorily, while Dr. LAZARUS-BARLOW'S own record is an extremely lucid piece of writing. Suffice it here to say that every step in the investigation appears to have been taken with the greatest care, and the only doubt is whether the facts deduced can bear the burden laid upon them. The experiments are apparently to be continued, and we must postpone till the

investigations are complete any definite decision as to the adequacy of the explanations which are offered for the various phenomena observed; for the work accomplished and the manner in which it has been done we have nothing but praise.

Oral Sepsis.

THE pathological importance of the mouth has been appreciated at its proper value only of late years, when several diseases have been recognised as arising from micro-organisms breeding therein, and it is not improbable that the future will add greatly to the list of the morbid processes which may be attributable to oral sepsis. We are led to this reflection by the perusal of two papers appearing in this issue of THE LANCET by Dr. G. I. STEWART and Mr. L. A. PARRY respectively. That the conditions obtaining in the mouth are pre-eminently suitable for the nurture and growth of micro-organisms is now so universally allowed that we need do no more than enumerate the main points in the briefest manner. In the mouth we have a cavity to which entrance of micro-organisms from without is unimpeded. Every mouthful of food or drink or air that is taken may add greatly to the number of any microbes present, when the conditions of the cavity in conformation, temperature, and moisture favour rapid multiplication. So anfractuous a receptacle provides numberless hiding places where colonies of bacteria can lurk unmolested and increase rapidly. The spaces between the teeth offer suitable breeding-places, while cavities of their substance or pockets due to retraction of the gums add to the amenities offered to micro-organisms. The irregular surface of the tonsils plays its part, and all the conditions alike bring it about that numberless stray particles of food should be left behind in the oral cavity after swallowing, providing an enormous supply of decomposable material. The abundant supply of moisture, so necessary for the growth of most bacteria, has a weak alkaline reaction which also favours decomposition; and the temperature, which in the parts more exposed to air currents is several degrees below that of the body, in the more recondite positions reaches the body temperature, providing changes of climate suited to the constitution of a very large number of visitors. We need not therefore feel any surprise when we are told of the extensive flora present in the mouth: it is extensive even in the civilised man who devotes attention to the cleansing and care of his teeth, but among what is still the vast majority of people who never clean the teeth and whose mouths contain carious stumps this flora is oppressively luxuriant. Here it is, indeed, surprising, not that many septic processes, near and distant, may follow oral sepsis in such cases, but that life in so many instances continues almost undisturbed by processes going on in the gateway of respiration and digestion.

The question naturally arises, Has nature made no provision to cope with this enormous bacterial invasion? The answer is that some prophylactic measures have been taken; the adenoid tissue which forms abundant masses in the tonsils and lines also the upper part of the pharynx is apparently intended to intercept and destroy both bacteria and their products coming from the mouth; and the frequency with which this lymphoid tissue is inflamed testifies to the need for its presence. The mechanical cleansing of the mouth, that resulting from a natural diet, is also not to be despised. When hard food is taken into the mouth and chewed it removes mechanically many of the micro-organisms of the mouth, while soft, pulpy foods, so dear to the palate of modern man, favour the accumulation of decomposable material in the mouth. In the savage state, as in the lower animals, carious teeth are rare; opinions differ as to the reason why civilisation is followed by carious teeth, but the fact remains that caries appears to be much commoner in civilised communities than among the less advanced races. There are three methods by which this abundant microbic invasion may cause disease. In the first place, by direct extension the germs invade the gums, the tongue, and the cheeks, and extend into the neighbouring cavities of the pharynx and nose, setting up inflammation in the mucous membranes and in the deeper structures, and also involving the lymphatics and the glands. Not less important is the infection liable to be produced by aspiration of organisms into the respiratory tract, for thus are set up many forms of laryngitis and tracheitis, as shown in the paper by Dr. STEWART; and in the same way, though more rarely, is caused the aspiration pneumonia, so striking and fatal a complication of operations on the mouth. There is yet a third way in which an oral sepsis may invade healthy tissues, and that is by absorption, either directly from the mouth or after swallowing; and many general conditions, formerly of very obscure etiology, seem now to be explicable as arising from the absorption of toxic products formed in the mouth. Great and important though these septic processes in the mouth may be in ordinary circumstances, they are of especial importance in connexion with operations on the mouth and its adjoining cavities. Time was when surgeons proceeded to remove a tongue or excise a portion of a jaw without having paid any regard to the condition of the mouth. It is surprising that in many cases no obviously harmful results followed these operations, even though the condition of the mouth may have been septic in the extreme, but in only too many instances a septic pneumonia or a general infection has led to a fatal termination.

The case under the care of Mr. PARRY in which acute mastoiditis and later cerebellar abscess followed and evidently resulted from an operation for the removal of tonsils and adenoids is instructive. The operation of removal of adenoids is now looked upon as a very harmless operation, but septic complications are probably less rare than is usually imagined. With sepsis of the mouth present even slight operations on the mouth or in its neighbourhood may be followed by harmful results. The greatest attention should therefore be paid to the condition of the mouth in all such operations, and even in operations on parts farther off. It is now being recognised that oral sepsis militates greatly against operations on the stomach and intestines, and care as to the condition of the mouth is likely to be followed by better results. In all obscure morbid conditions arising in any part of the body it is well to take into consideration the condition of the teeth, for in oral sepsis we may find the

explanation of many morbid processes, and in its removal we may find the simplest and most satisfactory method of treatment. On the condition of the mouth much of the health of the nation depends, and it is a sign of awakening wisdom among us that the care of the teeth of our children is now to share public attention with the curriculum for their instruction.

The Medical Inspection of School Children: By Whom Should it be Carried Out?

WE have referred in many recent issues of THE LANCET to certain circumstances in connexion with the medical inspection of school children, dwelling firstly on the situation at present existing between the metropolitan hospitals and the London County Council, and secondly on the possibility of the institution of school clinics being recognised as the preferable method among several methods for the carrying out of any treatment following upon inspection. We wish this week to look at another phase of a complicated and difficult question, rural districts being now under consideration rather than the metropolis or great urban communities. The duty of inspection has been delegated to local administrative bodies by the State, and medical men ought to be ready to consider the several proposals which have been, and are being, made for carrying out the work both of inspection and treatment, remembering always that the prime interest of the State is the health of the community rather than the internal policy of any profession. The growing disposition on the part of the State to monopolise for small remuneration the services of medical men for this purpose is raising difficulties which can by no means be ignored, and these difficulties appear to be increasing rather than diminishing day by day. There is, for example, a distinct tendency on the part of the education authorities to procure the inspection in question by the instrumentality of young medical men who are required to devote their whole time to the duties of their office, and there are, of course, many reasons which can be adduced in support of this practice. Amongst other things it makes for unity of method in the several schools of the district, and prevents, or should prevent, friction which might in some cases not inconceivably arise amongst the local practitioners were the medical inspection carried out by one of their number. There are, however, objections which may be urged against these whole-time officers, and one of them is the fact that they are not and cannot get into touch with the children and the parents in a manner which might be the case were the work divided amongst the local practitioners, while the consideration that their term of office is likely to be transient lends additional force to this contention. Yet as things are at present arranged by the Local Government Board and the Board of Education there are reasons why the actual inspectorial work should in some cases, as, for instance, in a county area, be carried out by the local medical officer of health acting under the supervision of the county medical officer of health, and this is the arrangement which has actually been introduced on the recommendation of Dr. F. E. FREMANTLE, the county medical officer of health, in the county of Hertfordshire. Perhaps the strongest argument in favour of this arrangement is the desire on the part of the two Government departments concerned in the health of the children that there shall be cordial coöperation between the school medical officer and the local medical officer of health, both of whom are given jurisdiction in the schools in the matter of control of infectious disease. It is the wish of both Government departments that medical inspection "should be carried out in intimate conjunction with the public health authorities and under the direct supervision of the medical officer of health," and that "as far as is practicable the school medical service should be uniform with the public health service." We quote the words of a recent circular of the Board of Education.

Such coöperation ought not to be difficult of achievement if both the school medical officer and the medical officer of health possess elementary administrative tact, although each of these officers is given specific administrative functions in connexion with both the schools and the scholars. The medical officer of health has already to report upon the sanitary conditions of the schools as well as upon the action taken in relation to the health of the scholars and for preventing the spread of infectious disease, while the Board of Education, in its circular No. 576, refers to the objections to dual jurisdiction in the sanitary control of school premises and the notification and prevention of the spread of infectious diseases, in which directions the duties of the medical officer of health and of the school medical officer necessarily and obviously overlap. The Board of Education goes on to point out that "if these duties are to be effectively carried out the interest and activities of the school medical officer must extend over the whole external environment of the child," adding that "efficiency and economy require therefore an organic relationship between the daily work of the school authority and of the authority responsible for the administration of the wider branches of public health." There is no doubt as to the necessity of this organic relationship, and in certain instances it may perhaps be best provided for by the appointment, as in Hertfordshire, of the district medical officers of health acting under the superintendence of the county medical officer. But it seems to us that there are many circumstances in which this arrangement would not be so desirable as one by which the actual inspection was carried out either by a whole-time officer or officers, or by local medical practitioners, whether medical officers of health or not. When the local medical officer of health is also in private practice there might be professional objections to his becoming the school medical officer, objections which would tend to be emphasised were the treatment of diseased conditions by the education authority to become at all general. We are not, now, discussing the matter of treatment; but this is the all important side, and the machinery of inspection will be valueless unless it is put into action with a view towards treatment.

Notwithstanding the opinion expressed by the Board of Education as to the undesirability of dual control, such dual control must obtain in certain particulars,

and therefore the officers concerned in such control, being in many instances officers of the same authority, must work harmoniously together much in the same fashion as the medical officer of health, the surveyor, and sanitary inspector have had to do for very many years past. Each of these officers has jurisdiction over certain matters in common, and the arrangement is one which is not without some advantages. One important consideration in favour of giving the actual medical inspection of school children to local medical officers of health in certain instances is that by so doing a part-time medical officer of health may be converted into a whole-time officer, an arrangement which to a great extent avoids the professional objections with regard to medical inspection which have already been referred to. But in so far as the work of inspection is concerned, we trust that the claims of those practitioners who are not also medical officers of health will not be overlooked, as from their local knowledge of the children and of their parents and their homes they are the most likely persons to be of service to the State in promoting the health of the rising generation.

Annotations.

"Ne quid nimis."

THE PRICE OF RADIUM.

IT is to be hoped that some other source of rays having the same curative properties as the radium rays will soon be discovered, having regard to the extreme rareness and costliness of this extraordinary element. We do not despair that some such discovery will be made, especially in view of the fact that recent investigations have led to a differentiation of ray from ray, some proving to be irritant in their nature, while others are healing. The x rays had not long been tried in therapeutics before it was found that a skin irritation beyond the power of remedies was set up; later a means was found of filtering the rays from their irritating component, so that all danger in their application can be avoided. It is therefore conceivable that as the work of analysis or differentiation of rays progresses the exact radiation that is required in the treatment of disease will be found. Next, this method of analysis applied to radiations given off by various electric discharges may lead to the separation and concentration of an identical radiation, a discovery which will make us independent of a radium supply and which will open up a vast new domain in the treatment of disease, or so it appears from the promises of recent pathology. This week it was announced that a contract for the supply of about a quarter of an ounce of radium bromide had been placed with a mining company owning a pitchblende mine in Cornwall. The price is said to have been fixed at about £114,000 per ounce. The radium is to be presented by Lord Iveagh and Sir Ernest Cassel to the Radium Institute. It is stated that the radium will be separated from its ore by a firm in Germany under the superintendence of its chemist. This last announcement will come as a disappointment to most English people, and doubtless it will lead some to believe that the work of separating radium from pitchblende is not amongst the attainable achievements of the English chemist. Not long ago an English chemist visited a pitchblende mine in Cornwall, and was informed that the ore after powdering was sent direct to Germany because "the English chemists did not know how to treat it here." We are certain that is not the case. On being asked whether radium was made from it the miners did not know, but stated that uranium had been used in making ornamental glass for a good many years. It is probable, therefore, that when radium was discovered in Cornish uranium ore (pitchblende) the workers who employed it for tinting glass turned their attention to the rare element, and finding it present doubtless entered into further contracts which would make the task of extracting radium a profitable undertaking. If this is what has happened the incident seems to us to give further proof of the opportuneness of the Prince of Wales's warning to England to "wake up," and it is a queer coincidence that the illustrative circumstance should have occurred in his own duchy.

THE MEMORANDUM OF THE DIRECTOR-GENERAL OF THE ARMY MEDICAL SERVICE ON CHRONIC TYPHOID CARRIERS.

WE have received a copy of an important Memorandum prepared by the Director-General of the Army Medical Service, and presented to both Houses of Parliament, on the difficult subject of the Transmission of Enteric Fever by the "Chronic Carrier." We commented upon one side of this question from the point of view of civilian practice in THE LANCET of June 19th, p. 1770, and pointed out the difficulties in keeping watch after convalescence upon the patients who have suffered from the disease with a view to the discovery and treatment of those who are carriers of the bacilli. We further published an interesting case recorded by Dr. P. J. Cammidge, in which there was evidence of discharge of typhoid bacilli by the fæces 10 years after recovery from the disease. The Director-General, in his memorandum, gives an interesting *résumé* of the history of the discovery of the existence of "typhoid carriers," and of the means taken by the Government of India to discover and isolate them from the troops. On the recommendation of a committee specially appointed to consider the question Naini Tal depôt was reserved for patients convalescent from enteric fever, and bacteriological investigations were carried out, with the result that during 1908 several chronic carriers were detected and subsequently invalided to England. Since all attempts to render such patients free from the bacilli by medicinal treatment, such as by the administration of salol and urotropine, have proved unsuccessful, the Army Medical Advisory Board deputed a subcommittee to investigate other methods of treatment. They found that the cases fell into four groups—viz., pure intestinal cases, urinary cases, intestinal cases with symptoms of inflammation of the gall-bladder, and mixed intestinal and urinary cases. In the pure intestinal cases it was thought that lactic acid bacilli might possibly serve to disinfect the gastro-intestinal tract, and this form of treatment was employed in two cases specially selected for that purpose. In one of these the treatment has apparently been successful; in the other, although the Bulgarian bacilli were well established in the alimentary canal, typhoid bacilli continued to be passed, but in diminished numbers. It is of interest to note in this connexion that Professor Drigalski, in conjunction with Professor Fraenkel, has obtained apparently successful results from this treatment in two cases. In regard to the other classes of typhoid carriers it was obviously improbable that the lactic acid bacilli could effect any great improvement, and it was decided to attempt to treat these cases by means of vaccines with the view of increasing the protective reactions of the body towards the bacillus. It was found that on employing in these cases the stock vaccine used in the prophylactic inoculation against the disease the protective substances were increased, but the

excretion of bacilli was not arrested. The elaboration of protective substances appears to be related to the virulence of the strain of typhoid bacilli which has infected the body, and a vaccine prepared from a comparatively non-virulent strain does not appear to be very effective. In future it is intended to prepare a vaccine from each patient's own organism. Sir Alfred Keogh's memorandum is an important contribution to the study of the problem of carrier cases, and although the results so far obtained are inconclusive they are sufficiently encouraging to warrant further work upon the same lines.

POST-MORTEM CÆSAREAN SECTION.

THIS operation is undoubtedly one of great antiquity, although it is difficult to state at what period of time in the world's history it was first performed. The *lex regia* of Numa Pompilius, by which it was enacted that in the case of a pregnant woman near full term dying undelivered the body should be opened immediately after death and the child extracted, shows that it was known to, and practised by, the Romans. That post-mortem delivery was recognised in ancient mythology is suggested by the legends surrounding the birth of Bacchus and of Æsculapius, and renders it probable that its first origins are to be sought at a very early date. Rosenbaum is, indeed, of opinion that the operation was practised probably by the professional embalmers among the ancient Egyptians. Subsequent to the date of the *lex regia*, numerous ordinances were passed for the same purpose, but it would seem that the procedure fell into disrepute possibly on account of the bad results obtained as regards the life of the children. With the spread of Christianity and of the rite of baptism, which gave to the life of the unborn child an increased worth, the operation again came into favour, and in the first half of the eighteenth century Pope Benedict issued a precept in which the indications for, and the precautions to be observed in, its performance were duly set forth. As Hubert remarks, the Roman Catholic Church reproduced the injunction of the *lex regia* in the following decree of its ritual: "Si mater praegnans mortua sit, fructus quam primum caute extrahatur." At the present day post-mortem Cæserean section holds a definite place in the medical art and should undoubtedly be practised in all cases in which the chance of delivering the child alive is present. In some countries indeed, for example, in the German States of Bavaria, Würtemberg, and Saxony, the *lex regia* is still in force. In France and England the matter is left to the discretion of the attendant physician, and as a natural result in these countries the operation is undertaken very infrequently. The reluctance of many obstetricians to perform it is explained when we study the results shown by the older statistics; thus of 299 operations of this nature performed up to the year 1888, in only 19 cases were the children extracted alive and only 5 of these survived. Modern statistics are, however, much more encouraging—for example, of 14 cases collected by Bauer, 10 children were born alive, and of 28 cases collected by Dicke during the years 1875 to 1903, 28 children were delivered alive, of whom 19 survived. It must be remembered, however, that these figures are probably unduly favourable, since only successful cases are likely to be published. The chance of the child surviving will necessarily depend a good deal on the cause of the mother's death. The researches of Breslau and Runge have demonstrated that the fœtus is most likely to survive for some length of time after the death of the mother when this has taken place suddenly. In cases of high fever or of acute septic poisoning the fœtus not infrequently dies before the mother. The accounts of cases in which children are said to have been extracted alive from the uterus even after the burial of the mother, belong to the realms of fiction. Of this description is the story of François de Civile, who on great occasions signed himself "trois fois enterré et trois fois par le grâce de Dieu resuscité," and who is said to have been delivered by a Cæsarean section performed on the exhumed body of his mother. The most recent observations point to the likelihood of obtaining a living child after a longer interval of time than 20 to 25 minutes after the death of the mother being extremely small. In two recent cases recorded by trustworthy authorities, living children were extracted 19 and 17 minutes after the sudden death of the mothers. The suggestion that in order to minimise the risk to the child the operation should be performed on dying patients before a fatal issue actually results has found favour recently amongst various obstetric writers. This suggestion is one, however, of considerable antiquity, and was put forward by some of the older Italian writers, who discussed the advisability of the operation in the moribund state before death actually occurred. A number of modern cases of this kind have been recorded with a good result to the child. The difficulties in coming to a decision in such a condition will naturally be even greater than in the case of a patient who is certainly dead, and this procedure is consequently hardly ever likely to be practised except in a hospital. On the other hand, the performance of a post-mortem Cæsarean section may fall to the lot of any practitioner, and it is essential that he should have clearly in his mind the conditions which would render such an undertaking justifiable. These may be postulated shortly as follows: that the child should be viable and alive, that not more than 20 minutes should have elapsed since the death of the mother, and that the possibility of a rapid delivery by the natural passages should be out of the question. An interesting case in this connexion recently has been the subject of a coroner's inquest in the town of St. Laurent in Canada. A woman suffering from an abscess in the brain died during labour, and at the order of the priest in attendance a midwife performed post-mortem Cæsarean section, it is said with a razor, and extracted a living child who survives. The matter naturally occasioned a good deal of comment in a small town, and in view of the rumour which prevailed that the woman was not dead at the time the operation was performed the midwife was held by many to have committed murder. A post-mortem examination, however, cleared up the cause of death and all the parties concerned were exonerated. The performance of such an operation by anyone but a properly qualified medical man, especially in a case in which the patient was not dead at the time of its performance, might well expose the persons concerned to a charge being preferred against them of manslaughter, if not of murder.

ANNUAL EXHIBITION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE affairs of the Royal College of Surgeons of England are usually conducted in the quiet and well-ordered manner characteristic of our older institutions, so that events of considerable interest to the medical public may pass by unobserved. Every year on the day of election to the Council and the two succeeding days—July 1st, 2nd, and 3rd of the present year—all the specimens that have been presented or purchased or prepared for the Museum during the previous 12 months are placed on exhibition in the Council Room of the College, and give those who are engaged in active practice an opportunity of seeing in a concrete form an epitome of recent advances in surgery and in morbid, human, and comparative anatomy. The additions for the present year, some 380 in number, form a small museum in themselves, and represent gifts and purchases from all parts of the world. Those interested in the teeth and palates of

primitive races will have an opportunity of examining a series of 83 crania of a primitive tribe of negroes obtained from a remote part of the Congo Free State. Mr. Rickman J. Godlee has presented a series of casts illustrating the cases of torus palatinus recently described by him. Mr. Shattock's preparations to show the manner in which fat deposits are made in various members of the vertebrate form an instructive series. Through Mr. T. P. Legge a specimen has been obtained from Western Australia to exemplify the operation of infundibulation practised by the aborigines of that part. Of the 90 specimens added to the pathological and teratological series, there are several of exceptional importance, and all of them show some new feature of diseased action.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION.

As will be seen by a notice in another column the annual meeting of this association, which is to be held in the very centre of London—that is to say, the Guildhall—will include a conference of the Poor-law Medical Officers of England and Wales upon the recent reports of the Royal Commission on the Poor-laws and Relief of Distress. It is particularly hoped that as many Poor-law medical officers as possible will attend this conference, for three of the Royal Commissioners are to be present, and the papers to be read are practical. It is probable, therefore, that the discussion which will ensue will deal with the highly important subject matters in a valuable way, and that much light may be shed on the difficult question of the administrative methods necessary to amend our existing system of medical relief.

EXCESSIVE URBAN MORTALITY IN IRELAND.

THE relatively high rate of mortality that prevails in the urban population of Ireland has scarcely received the attention that the subject deserves. The returns issued by the registrars-general for the several parts of the United Kingdom show that while the death-rate during last year did not exceed 13·8 and 15·2 per 1000 respectively, in London and Edinburgh, it was equal to 23·0 in Dublin City and to 21·5 in its larger registration area. This excessive urban mortality was not, however, confined to Dublin. It appears from the Annual Summary issued by the Registrar-General for Ireland, that the annual death-rate during the 53 weeks of last year, in 22 of the principal urban districts of Ireland (including Dublin), was equal to 20·2 per 1000, whereas the death-rate during the same period in 76 of the largest towns in England and Wales (including London) did not exceed 14·9. The rate of urban mortality in Ireland shows a marked excess, moreover, not only in comparison with the rate of urban mortality in England and Scotland, but also when compared with the mean rate of mortality in the whole population of Ireland. The above-mentioned death-rate of 14·9 per 1000 last year in the 76 large English towns exceeded the mean death-rate in the entire population of England and Wales by but 0·2 per 1000; whereas in Ireland the mean rate in the 22 urban districts exceeded the rate in the entire population of Ireland by no less than 2·5 per 1000. This marked excess of urban mortality in Ireland, whether compared with rates of urban mortality in other parts of the United Kingdom, or with the death-rate in the entire population of Ireland, calls for full and careful investigation. It is a well-known fact, to which special attention has been drawn in connexion with old-age pensions in Ireland, that the Irish population is abnormal as regards its age-constitution, containing as it does an undue proportion of elderly persons, the result of the long-continued emigration of young adults. The crude annual death-rate in Ireland was equal to 17·7 per 1000 both in 1907 and in 1908; but corrected for this exceptional age-constitution on the hypothesis of an age-constitution identical with that prevailing in England and Wales, the Irish death-rate in each of those years is reduced to 16·1 per 1000. This corrected rate, however, compares unfavourably with the death-rate in England and Wales, which did not exceed 15·0 in 1907 and 14·7 in 1908. The Irish returns unfortunately do not afford the means for correcting the Irish urban rate of mortality for the abnormal age-constitution of the urban population, but as the age-constitution of urban populations is invariably conducive to a lower rate of mortality than the age-constitution of rural populations, it may safely be assumed that the excess of mortality in the Irish towns, measured by the crude death-rate, is understated. The fact, therefore, that the mean uncorrected death-rate in the 22 Irish town districts during last year exceeded the death-rate in the whole of Ireland by 2·5 per 1000, or more than 14 per cent., affords conclusive evidence of unsatisfactory sanitary condition in the towns, calling for more efficient sanitary administration.

THE PROPHYLAXIS OF YELLOW FEVER.

IT cannot be said that the specific germ of yellow fever has yet been discovered, but there is a general consensus of opinion that it is an ultra-microscopic organism which defies detection by the present means at our disposal. Based, however, on the discovery that the transmitting agent of the disease is a mosquito, the Stegomyia fasciata (or calopus as it is termed by American experts), the mode of spread of yellow fever and its prophylaxis have been fully and carefully worked out during the last few years. Dr. G. M. Guiteras, who has taken a conspicuous part in this work, has recently prepared a pamphlet on the "Prophylaxis of Yellow Fever," which has been issued by Surgeon-General W. Wyman, chief of the United States Public Health and Marine Hospital Service, as Bulletin 17 of the Yellow Fever Institute. In this pamphlet Dr. Guiteras sets out the principles on which prophylaxis of the malady is based. He emphasises the great importance of early diagnosis of this disease with a view to immediate notification, since it is a well-established fact that the stegomyia can only become infected by biting a yellow fever patient some time during the first three days of the illness, but not afterwards. It is therefore necessary at once to protect the patient from the bites of non-infected stegomyiæ during those first three days, and afterwards to secure the protection of healthy persons from the bites of infected insects. It is admitted that early diagnosis is in many cases extremely difficult, and for this reason Dr. Guiteras urges that all cases of febrile disturbance, the cause of which cannot be satisfactorily traced in localities where yellow fever has appeared, should be regarded, at all events for the first three days, as true yellow fever, and properly protected against the bites of mosquitoes. Dr. Guiteras places great importance on educating the public as to facts concerning yellow fever and the way in which it is spread, so that their help may be given in the measures directed against the transmitting agent. He points out that if war against mosquitoes generally were declared, not only would the diffusion of yellow fever be checked but also that of malaria. All important facts as to the transmission of the malady by mosquitoes should be taught in public and private schools as well as in colleges in those areas where yellow fever is liable to appear. Children should be taught to dread a mosquito as they now do other insects. Public opinion should be so guided as to make it regard the mosquito, not only as a disagreeable pest, but also as a very dangerous one. All collections of water should be abolished or covered with oil, and all cisterns should be screened securely with fine-meshed metallic gauze. Regular and systematic house-to-house inspection should be carried out weekly if possible to

see that no "water containers" exist capable of harbouring mosquito larvæ. The use also of small fish in collections of water which cannot otherwise be dealt with is recommended. Lastly, the removal of all unnecessary obstructive vegetation and the screening of doors and windows of dwellings should be carried out in infected areas. The complete extermination of mosquitoes, it is admitted, is hardly practicable, but relative extermination is well worth attempting and is likely to diminish the danger. In times of serious epidemics of yellow fever Dr. Guiteras would go so far as to invoke the aid of "martial law," since he regards the present powers available under the Republican Government to be inadequate to secure house-to-house inspection and compulsory removal of all cases to hospital. With "martial law" to support the health officials, he contends that the prophylactic measures which he advocates could be better enforced in every detail, and outbreaks of yellow fever would thus be more effectually controlled. In connexion with Dr. Guiteras's recommendations it is interesting to note that in most of our own West Indian colonies much the same measures are now being, and for some time back have been, successfully enforced. From a letter quite recently written to the *Times* by Sir Rubert Boyce, who had been sent to the West Indies to advise the local governments respecting a threatened epidemic of yellow fever, we learn that pupil teachers, sanitary inspectors, and others are now being trained by means of lectures, demonstrations, and health primers to take part in a determined effort to rid these colonies of mosquito-carried disease. It is now a punishable offence to harbour mosquito larvæ upon the premises, and already a considerable number of convictions have been secured with fines varying from 1*s.* to 40*s.* A careful study is being made of the local breeding-places of mosquitoes, and also investigations as to the natural enemies of mosquito larvæ. One of these enemies has been found in the small fish named "millions," quantities of which are now being exported to other tropical countries on this account. Both Dr. Guiteras and Sir Rubert Boyce are convinced that if the measures above indicated were effectually and persistently carried out, yellow fever would not often trouble those fair and fertile regions in which it so often appears, to the legitimate alarm of the inhabitants and the detriment of trade and commerce.

FALSE ECONOMIES IN THE ROYAL ARSENAL HOSPITAL.

WOOLWICH, or at all events that very large portion of the residents who are connected with the Royal Arsenal, is seriously disturbed by a rumour that the medical department of the Arsenal is to be cut down—presumably to save expense to the War Office. Some years ago the number of medical officers was increased from three to four, and the small hospital, which had been almost exclusively used for accident cases occurring in the works, was added to, and surgical cases of all kinds occurring among the employees were admitted and operated upon, greatly to the advantage of the men, as there is no general hospital in the neighbourhood that can be counted upon as certainly available. The Woolwich and Plumstead Cottage Hospital on Shooter's Hill has only a very small number of beds, although it is fully equipped for the most serious operations. At Greenwich, though there is, besides the Seamen's Hospital, the Miller Hospital, the accommodation is still too limited, and consequently the Arsenal employees have greatly valued the opportunity afforded them of surgical aid within the walls of the Arsenal itself. This accommodation is now, it is understood, to be put an end to, only cases of accident while at work or exceptionally urgent ones, such as strangulated hernia or acute appendicitis, being admissible. The number of medical officers is to be reduced to three and further economies will be effected by the reduction of the nursing staff. Henceforth, therefore, a workman suffering from hernia, varicose veins, chronic appendicitis, fistula, or tumour, instead of being operated on in the Arsenal hospital, where there are always expert military surgeons able and willing to relieve him, must go to swell the numbers already waiting for admission to Guy's or some other London hospital. We trust that the Government will pay more heed than it seems inclined to do to the opinions of its own officials in Woolwich, and will recognise the tragedies which may follow on any cheeseparing in respect of the surgical equipment of the Arsenal.

ABDOMINAL ARTERIO-SCLEROSIS.

ONLY within recent years has the fact been recognised—principally in consequence of the work of German observers—that arterio-sclerosis of the abdominal arteries may cause distressing abdominal symptoms, an abdominal analogue of angina pectoris. This fact is important, for abdominal arterio-sclerosis is not uncommon, and when it produces symptoms these are misunderstood and regarded as due to gastric and intestinal affections. The diagnosis is not difficult if the practitioner bears in mind the possibility of such a condition; if he does not, a mistake is inevitable. In the *Journal of the American Medical Association* of June 5th Dr. H. L. Akin has pointed out the frequency with which the symptoms of arterio-sclerosis in the abdomen are regarded as due to gastric disorder and has reported a number of cases. A stockman, aged 56 years, who had enjoyed good health, "began to have trouble with his stomach." He took only two meals a day—a hearty dinner and supper. In the morning he felt well, but after dinner or supper if he walked a quarter or half a mile he experienced a feeling of fulness in the epigastrium and pain under the ensiform cartilage running down the left arm. He felt oppressed as if he could not breathe and must stop for a time. On stopping he belched up much gas and then could proceed without further trouble. If he sat still for half an hour after meals he generally had no symptoms. If he drank much fluid with his meals, especially ice-water or tea, he generally had an attack. His bowels acted regularly. He was a large meat eater and was subject to attacks of gout about every six months. The aortic second sound was accentuated; the pulse was 90 and of high tension. The urine contained a little albumin, but no casts. The acidity of the gastric juice was normal. As this was the first case of the kind which Dr. Akin observed he regarded it as simply gastric. He prescribed three meals a day, restriction of meat, and rest, which gave temporary relief. Then a typical attack of angina pectoris showed the true nature of the case. In a second case a healthy farmer, aged 55 years, began to have gastric symptoms. After supper his stomach became distended with gas and he had a feeling of oppression so that he could not lie down. Eructation gave immediate relief. He was treated without effect by many practitioners for dyspepsia and then for dilatation of the stomach. Examination showed a double aortic murmur, an enlarged ascending aortic arch, and general arterio-sclerosis. Rest and vaso-dilators followed by potassium iodide gave much more relief than the gastric treatment. In other cases the symptoms are intestinal, pains around and below the umbilicus coming on two or three hours after meals, and tympanites. In such cases Ortner has found after death the aorta thickened and calcified, a thick deposit of lime salts about the mouths of its branches, especially the mesenteric arteries, and the small branches of the latter rigid and contracted. The

intestinal walls were poorly nourished and their muscular coat was weak and unequal to its work. Ortner therefore compared this condition to "intermittent claudication," which is due to arterio-sclerosis of the lower limbs. This produces ischæmia of the muscles. After walking a short distance the patient is seized with pains and limps because the blood-supply of the muscles is insufficient for exertion. Erb supposes that during the attacks there is spasm of the arteries. Similarly the abdominal attacks may be explained by arterial spasm. The interference with the blood-supply of the stomach or intestines would impair all their functions—motion, secretion, and absorption. The atony and fermentation would account for the distension and flatulence. Abdominal arterio-sclerosis may also produce other symptoms which may prove misleading. There may be pain and tenderness in the epigastrium combined with vomiting, backache, and hæmatemesis, suggesting gastric ulcer. Perutz of Munich has recently recorded a case in which he had great difficulty in excluding gastric cancer, and Dr. Akin has seen a similar case. In the diagnosis the practitioner should not be led astray by complaints of indigestion and confine his attention to the stomach, especially when nocturnal symptoms with attacks of distension, heart disturbance, and dyspnœa are prominent. Then examination of the vascular system may show a somewhat enlarged heart, an accentuated second sound, rough sounds over the aorta, episternal pulsation and hardened arteries usually with a high-tension pulse. There will also be attacks of cardiac pain radiating to the arm, tenderness over the abdominal aorta down to the navel, and perhaps urine increased in amount and slightly albuminous. Treatment for a time at least is often satisfactory. The diet should be plain and digestible. The evening meal should be limited so as to prevent flatulence. General measures, such as bathing, fresh air, suitable exercise, attention to the bowels, and relief from work, are indicated. Vaso-dilators, such as diuretin, sodium nitrite, and nitroglycerine, give good results. Diuretin in from 10 to 15 grain doses thrice daily is the most effective. Potassium or sodium iodide in from 5 to 10 grain doses for a long period is also useful.

OX GALL AS CULTURE MEDIUM FOR TYPHOID BACILLI.

As long ago as 1894 it was remarked by Fischer and Leo that Eberth's typhoid bacillus lived and multiplied within the gall-bladder. Ten years later Conradi, when examining the blood of typhoid patients for Eberth's bacillus, thought that bile would exert an anti-coagulating effect, and mixed at first 0·5 cubic centimetre of blood with 1 cubic centimetre of bile. He afterwards adopted a medium composed of bile, glycerine, and peptone. Subsequently Kayser turned his attention to bile as a culture medium for the typhoid bacillus, and after experimenting with different proportions of blood and bile came to the conclusion that the best results were obtained when 2·5 cubic centimetres of blood were sown in about 5·0 cubic centimetres of pure bile. Recent investigations made by Dr. Nicolou Bettencourt and Dr. Garcia Regalla, which are published in the *Jornal da Sociedade das Sciencias Medicas* of Lisbon, would appear to show that such a blood culture provides a more trustworthy diagnostic test in the early stage of typhoid fever than Widal's better-known procedure, which, however, is to be preferred later. The blood was taken from the veins in the bend of the elbow by means of a sterilised syringe and added to pure ox gall in small flasks, which were then placed in the incubator at a temperature of 37° C. for from 12 to 30 hours. Generally the characteristic colonies were produced in Conradi's medium in 18 hours. If the result was negative the examination was repeated for six consecutive days. The identification was confirmed by Widal's reaction and in most cases also by Kolle's quantitative agglutinative method. Of the 11 cases examined during the first week of the disease every one gave a positive result. Of the 17 examined during the second week 14 gave positive results, but only four out of the eight which were in the third week acted thus. One important point of interest to practitioners at a distance from a bacteriological laboratory was made out very clearly—that is to say, the blood-sown bile may be kept for as much as 30 hours before being placed in the incubator. Again, it appeared that the cases of slighter severity were those which gave negative results in the second and third weeks. After a long incubation, 36 hours, it was possible to distinguish typhoid from paratyphoid bacilli. While the number of cases reported in Dr. Bettencourt's paper is too small to establish the certainty of the test, the ease with which it can be employed and its apparent special suitability at the very commencement of the disease render it worthy of more extended trial. It may be remembered that more than one recent observer has called attention to the connexion between affections of the liver or gall-bladder with typhoid fever; thus, in 1904 Dr. A. Guinard[1] reported a case of large hepatic abscess occurring during the course of typhoid fever which when opened was found to contain typhoid bacilli in the pus. Subsequently Dr. B. A. Thomas[2] collected 154 cases of typhoid fever with cholecystitis, B. typhosus being found in the gall-bladder in 50 per cent. of all. Dr. Quénu[3] considers typhoid fever as a primary septicæmia, the liver being the primary agent for the elimination of the B. typhosus which is brought to it by the blood, and he thinks many jaundices are nothing less than primary infections of the bile passages by the B. typhosus. Weil's disease, too, he thinks, is probably produced in the same manner. We may refer our readers to an annotation published in THE LANCET of Oct. 10th, 1908, p. 1091, in which is recorded a brief account of the early diagnosis of enteric fever by blood culture upon Conradi's plan.

HYDROA GESTATIONIS.

ON p. 1827 we print an account of that rather rare condition known as herpes or hydroa gestationis which has been sent us for publication by Dr. Ernest Ward. The case recorded is typical, for the attacks occurred in several successive pregnancies, the eruptions appearing generally in the latter half of pregnancy and on one occasion in the puerperium. Until recently this disease was always attributed to the nervous system, but it is recognised by most dermatologists that it is probably the result of a toxæmia, such being very common at some stages of pregnancy. There are, however, probably other factors in the production of the disease. The fact that for the most part the legs are only or mainly affected points to the venous congestion which is so often present during pregnancy as assisting in causing the morbid condition, and it is not unlikely also that the instability of the vaso-motor system frequently met with in pregnancy may also be an important factor. Examinations made into the bacteriology of the fluid in the vesicles seldom show anything of importance, and it is very doubtful if microbic infection has any part in the production of the primary condition, though later secondary septic infection is very common. The onset of the affection appears to occur most frequently in the winter, from which it might be supposed that the affection was seasonal and due to cold, but it is not

[1] Medical Record, Oct. 23rd, 1904; quoted Medical Annual, 1906.
[2] New York Medical Journal, Oct. 12th, 1907; quoted Medical Annua 1909.
[3] Revue de Chirurgie, 1908, xxxviii., 571; quoted Medical Annual, 190

unlikely that the wearing of woollen, and therefore more irritating, stockings in the winter may favour the appearance of the disease in that season.

THE CORONERS' SOCIETY OF ENGLAND AND WALES.

THE annual banquet of the above society was held at the Holborn Restaurant, London, on June 17th, when Dr. W. Wynn Westcott, President of the society and coroner for North-East London, occupied the chair. Amongst the guests present were several well-known medical men. The usual loyal toasts having been proposed and honoured, Mr. G. Vere Benson proposed that of "The Imperial and Local Government," a toast which he thought imposed upon him a difficult task, but which he discussed from an appropriate point of view—namely, the relations of the office of coroner to Government administration. Those relations in the past had been satisfactory, he said, and he hoped and thought that they would continue to be so. Mr. George Radford, M.P., in replying, referred to the importance of the office of coroner. He confessed that he was not strongly qualified to speak on the subject, but he supposed that when a man became a Member of Parliament he was expected to speak on any subject. Mr. P. C. Simmonds, of the London County Council, followed in a speech which dwelt upon the exactions on the time of a councillor which the office pressed upon him. The proceedings closed with the toast of "The Officers of the Society," and during the evening an excellent, though not long, programme of music and recitals was given.

A TELEGRAM from the Governor of the Mauritius, received at the Colonial Office on June 19th, states that for the week ending June 17th there were 2 cases of plague and 1 death from the disease. As regards Hong-Kong, a telegram from the Governor, received at the Colonial Office on June 21st, states that for the week ending June 19th there were 16 cases of plague and 13 deaths from the disease.

APPLICATIONS are invited for appointment to the Chair of Surgery in the University of Edinburgh, vacant by the resignation of Professor John Chiene. Applications, with testimonials, should be lodged with the secretary to the curators, Mr. R. Herbert Johnston, at 4, Albyn-place, Edinburgh, on or before July 15th.

THE annual meeting of the Imperial Cancer Research Fund will be held at Marlborough House on Friday, July 9th, when H.R.H. the Prince of Wales, President of the Fund, will take the chair.

MR. W. A. MACKAY, M.D. Edin., of Huelva, Spain, has been awarded the White Cross of Carlos III. for distinguished surgical service rendered to the Civil Guard.

Dr. R. Deane Sweeting has been appointed to represent the University of Oxford at the forthcoming Sanitary Congress at Leeds.

MEDICAL CONGRESSES IN ST. PETERSBURG.—The Minister of the Interior has authorised the calling of an International Accoucheur-Gynæcological Congress in St. Petersburg, to which end a committee has been appointed under Professor Otto. In order to acquaint foreign medical men with Russian health resorts, mineral waters, and other special curative agencies in the country, the organising committee is arranging excursions to Moscow, the Crimea, and the Caucasus. The Minister of the Interior has also granted permission to the President of the St. Petersburg Ophthalmological Society, the Academician Belyarminoff, to convoke the Twelfth International Ophthalmological Congress in St. Petersburg, in July–August, 1913.

MEDICO-LEGAL EVIDENCE IN A CASE OF SUDDEN DEATH.

BY GEORGE E. WHERRY, M.C. CANTAB., F.R.C.S. ENG.

WITH the Employers' Liability Act and similar legislation there is an increasing tendency to make out that diseases are the result of accident. Among hospital patients especially there is a determined desire to put down every malady to accident. Employers of labour come themselves, or send their deputies, to the hospital to inquire about patients with motives connected with insurance awards. Thus there is more litigation in the law courts. In some cases patients attempt fraud by unfair statements; more frequently they exhibit great cunning in obtaining compensation. As an example, a man in the employ of a corporation was pecking up the road with a pick when a piece of granite flew into his eye and destroyed the sight quite hopelessly. It was his only eye; the vision in the other had been lost for 20 years. When he had recovered from the shock of the accident, which had completely blinded him, I found in the old blind eye a small area of clear cornea, a probable absence of lens, and other conditions not unfavourable for operation. I therefore urged the man to let me try to give him a little sight, especially as there was nothing to lose and he might gain something. Nothing would induce him to permit any operation, and he left the hospital. But some months after this he came to me, he having obtained the full compensation awarded for total blindness. He then wished to be operated upon; as a result he gained fair guiding sight and a very different outlook on life. The foregoing remarks are merely a preamble in justification for offering to print a short history of a recent medico-legal experience, only withholding or substituting names and avoiding unnecessary details in my narrative.

A man named Luke left his home in the Fens at 9 o'clock in the morning in his usual good health to buy potatoes, and he bargained and chatted until 4.30 P.M., when he left the "Red Ruin" public-house and got into his cart, which was waiting outside, to drive home again. He waved his hat and was very cheerful, and drove in such a manner as to bring two neighbours off the fields; these stopping the horse rather suddenly caused Luke to fall off the shafts on which he had been lounging. He remarked to one of the neighbours, "Oh, the drink, Mr. Quarto." By the fall he got an abrasion of the left cheek which bled a little. He staggered in his gait and fell, or partly fell, two or three times, getting up and steadying himself against the cart. Then a constable in plain clothes talked to him for some time. Luke lighted his pipe and chatted and seemed to have entirely recovered, so that at about 5.50 the constable left him in charge of his horse and cart. The horse was known to be shy of motors and engines. At about 6 o'clock, some ten minutes after the departure of the constable, Luke was aware of a road-engine approaching in front of him; he held up his hand and walked by his horse, but the engine-driver refused to stop, until a postman coming up the engine at last did stop, and the postman passed by. Luke tried to pass also, but his horse became more and more restive, pulled his master along, and in the struggle threw him down violently and dragged the cart over him. He died in a minute or two. The constable who had left him at 5.50 saw him dead at 6.10.

By the coroner's order an examination of the body was made by the nearest medical practitioner two days or so after the death. There was an abrasion on the left malar prominence and no other marks on the body. The brain contained a sub-dural clot of the size of a pigeon's egg on the right cerebral hemisphere; there was some atheroma of vessels. At the inquest the coroner was told by the doctor that Luke died from compression of the brain caused by the blood-clot, and that the bleeding began an hour or so before the accident opposite the road engine, and that the bleeding accounted for his condition outside the "Red Ruin," and that in any case he would have died when he reached home.

More than a year after the accident Luke's widow claimed compensation for the death of her husband from the owners of the road-engine for negligence in driving. The case was

tried before a judge without a jury. Besides the medical evidence already quoted a physician attending as an expert witness came down from London. He agreed with the opinion that the bleeding which killed Luke came on soon after 4.30 outside the "Red Ruin," and accounted for the staggering gait and other vagaries described, and that he would have died in any case when he got home. Accounts were related of men supposed to be drunk being put into prison cells and found dead in the morning from an intracranial bleeding. Luke was said to have had a period of recovery, and then the excitement and struggle with the horse proved fatal or accelerated the inevitable end. The widow's advisers asked me to give evidence, and I read the depositions, and was in court all the second day of the trial to hear the witnesses on that day. When the evidence of the two medical men had been taken there was an attempt, on some legal point, to prevent my evidence being taken; but the judge overruled this, allowing at the same time the other medical men to have the last words in a recall for a second examination. The salient points of my rebutting evidence the judge appeared to take down in longhand. I quote from a newspaper this paragraph.

Mr. Wherry stated that in view of what he had heard he considered that Luke died from external violence and without that violence he might be alive now. The suddenness of the end was what he chiefly relied upon in this statement. Cases of hæmorrhage without external violence did not die in a minute or two, except in very rare cases in which the vital centres were attacked. A bleeding the size of a pigeon's egg, laterally placed and formed without external violence, would have required at least *an hour* to cause death. Sir William Gowers would give at least *two hours*. In this case the death was admitted to be sudden, and he contended that this was only possible in the case of external violence. It was very easy to account for the antecedent condition of the man by assuming that he was a little "market-merry" or had been dazed by a fall from which he afterwards recovered. He did not think it fair to say technically that the man died of compression. He believed the man died of concussion and shock which disturbed at once the vital centres, both respiratory and cardiac. He fully believed that without external violence the man would have been alive now.

In cross-examination I was asked to listen to a sentence from a standard book on medical jurisprudence. How a man with cerebral hæmorrhage might appear to be drunk and then be clapped into a prison cell where "he would suddenly grow worse and die." "Do you agree with this?" "*The growing worse is sudden, but the death is not sudden.*" "Then do you say the book is wrong?" "*I am allowed to make comments and interpretations.*" "Was Luke drunk when he came out of the 'Red Ruin'?" "*He was market-merry.*" "That may be a pretty expression; but was he drunk?" "*He was happy, he waved his cap; you will allow that there are stages.*" "But was he drunk?" "*You wish me to answer yes or no?*" "Certainly." "*Then you wish to dictate my answer. He was not drunk when the constable left him.*"

It was necessary for me to show that the fall which caused the abrasion on the left cheek did not by contrecoup cause the clot on the right side of the brain. This would have meant a great commotion and a period of unconsciousness, not a period of merriment. Luke also probably became rather over-cautious as he recovered from his first excitement. About a month later the judge gave judgment for the plaintiff for the full amount claimed, with costs.

Apart from the question of drunkenness, which in these cases must be often a matter of opinion, there is the very serious question of the antecedent bleedings and clot formation in cases of death from violence. Here is a case of a man, coming out of a public-house, who is thought to be drunk by his friends, and thinks himself so. He is drunk as to his legs if not as to his head. He recovers, and is considered to be sober by an experienced constable. Then he is killed suddenly by a violent fall, and the medical evidence is to the effect that intracranial hæmorrhage began an hour and a half before the suddenly fatal end. If in giving this narrative I have taken too much my own point of view, this need not affect the real interest of the case. One has only to suppose it to be a trial for murder to realise the importance of this sort of experience to our profession.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* The title of Professor has been granted to Dr. Arthur Alexander, *privat-docent* of Laryngology, and to Dr. Max Levy-Dorn who has charge of the Röntgen Institute in the Virchow Hospital.—*Breslau:* Dr. Hans Vogt, Assistant Physician in the University Clinic for Children, has been recognised as *privat-docent* of Pædiatry.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

On the Cost of Running a Small Single Cylinder Two-seated Car.

Mr. F. H. Preston of Plumstead bought in September of last year a 6-h.p. Rover car, an automobile which I described in THE LANCET of August 22nd, 1908. This car was used daily, and in six months he covered 1552 miles. He has very kindly given me the following particulars as to the cost of running for that period, and as they seem about the average that a medical man who buys a good little two-seater car, such as the Rover, Darracq, small Star, little Renault, &c., may expect, I am publishing them; they should be some sort of guide to prospective medical motorists:—

	£	s.	d.
Petrol (77 gallons)	4	1	1
Lubricating oil (10 gallons)	1	7	0
Kerosine (used for cleaning)	0	1	6
Cleaning odds and ends, selvyt, spoke brush, pipe-clay, brasso, chamois leather, &c.	0	4	6
Waste, oil can, funnel	0	7	4
Repairs (glass to replace broken one in mileage recorder), repairs to radiator, clutch, and accumulator...	0	11	6
Pair non-skid covers	8	17	0
Annual licence for car (under the new Budget this would only be £1 1s., but to compensate the petrol for six months would be 25 per cent. dearer)	2	2	0
Licence for male servant (for the year)...	0	15	0
Water-rate (year's tax)	1	0	0
Total	£19	6	11

Mr. Preston tells me that the car was out every day, and excluding a puncture on one occasion he has not had any delays. The tyres were bought as spares and should consequently be charged to a special annual account and not to the six months. From personal experience I find that with ordinary running and luck two covers a year and one or two tubes are ample; with extra heavy covers on the back wheels they should run for a year, and then if re-treaded, do for another year on the front wheels. Non-skids, however, do not last as well: nine months' constant wear is about the life of a studded cover on a back wheel. The taxes apply to a year's running and not to the six months. The garage was in a stable on the premises and is not charged. The motor attendant, who does other duties, is likewise not charged for. Probably a lad at 10*s.* a week could do the work. The accumulators were charged at home off the main, a switch with resistance being fitted. Thus charging half cost of new tyres, half water-rate and licences, and 6*s.* for charging of accumulators, the cost for six months' running without stabling or wage of motor-cleaner amounts to £13 5*s.* 11*d.*, or under 2*d.* a mile; and this is what a light car driven by the owner should come to, or say with a fair allowance for repairs £30 to £40 a year, and such a car should run for five years. I myself still use a little 6-h.p. Wolseley, which is six years old and has not cost more than £35 a year to run, including tyres, spare parts, petrol, oils, &c., but excluding the cleaner. I certainly consider my car to be now as good as when I bought it and expect to use it for many a year to come.

Head Lights Brackets.

I have had some queries sent me regarding my notes, published in THE LANCET of May 8th, as to the best bracket for a single head light. I believe the simplest fitting is to bolt under each front spring a curved piece of wrought iron so shaped that the two ends come in front of the radiator and are the correct distance from one another, so that the bracket holes on either side of the lamp can respectively drop over these ends. Any blacksmith will bump out such pieces for a couple of shillings, and the ends which fix to the springs can be so shaped that they can be fixed and held under the bolts which attach the radiators to the springs or front frame of the car, as the case may be. If they are made so that the lamp is just above the radiator they can be given a slight tilt forward so that the beam of light from the lamp illuminates the near ground as well as the road ahead.

On the Choice of a Head Light.

Messrs. Joseph Lucas, Limited, have written in reference to a previous article of mine on this subject that their latest pattern "King of the Road" lamp, fitted with Mangin lens mirror and parabolic reflector, does light up the width of the road and also does not appear brilliant when looked at. They very kindly allowed me to have one of these lamps for a test. It certainly threw out a broad beam of light of great intensity straight ahead, which evenly illuminated the path of the car, but I still felt, in fact noted, by riding up to the car in another one that the light was somewhat dazzling to anyone approaching. I, however, fail to see how any lamp can absolutely avoid this, and in this particular lamp it is reduced to a minimum. I gave the lamp a fairly good test, as I came on a very dark night all the way from Bexhill to Woolwich; the first part of the journey I purposely took *viâ* narrow cross-country lanes through Ninfield, and by the excellent light that the lamp gave I was able to go as quickly as in daytime. I can certainly recommend these head lights for all who have to drive a motor at night-time in unlit country winding roads.

Some Points in the care of Acetylene Lamps.

The great thing with all acetylene lamps is to keep every part clean; it pays, and at the end of a run turn off the water first, then the gas, and do not let the light burn out. If you neglect this, then you have only yourself to blame if half an hour is wasted fiddling with a wrench to remove the burner, and then with a needle or bit of wire to clear a blocked jet. As for carbide, any ordinary dustless kind answers; that of the same size as is used for cycle lamps is the best—that is, bits not quite as large as monkey-nuts.

Extra Electric Lamps.

Those who prefer not to rely on one system of illumination will like the simple electrical connexions made by Messrs. Lucas. They screw into the back light and are well out of the way. The petroleum burner remains in position while the electric lamp is used, and it is only needful when burning oil to remove the electric bulb.

Some Points in the Diagnosis of Automobile Torts.

The process of correct solution of motor-car maladies is very like the method we were taught to adopt in our student days when essaying to solve the obscure medical and surgical riddles which we then encountered. Firstly, a list of the possible diseases is made, and these severally are then struck out by proving that they cannot exist, until finally but one remains, and that as a rule is the true one, chiefly because every other possible source of morbidity has been eliminated. Another point of similarity is that, as in one's medical work, so in automobile affairs, the most simple is often the real explanation. The young energetic man fresh from the latest seat of learning is rather keen on holding forth on a case of erythema, and speaks of the cocci of Luzzato, while the older general practitioner probably correctly diagnoses "measles." It is just the same in automobile matters. Recently I was talking "petrol" with a medical friend; he was young at it and very keen. He had a four-cylinder car with double ignition, non-trembler coil, and high-tension magneto. His car had lost power; hills it used to leap up now made it jump and groan and call for the low gear. My fellow automobilist was worried; the ignition, he said, was correct, the plugs clean, with points the correct distance apart, and the car was vile when the two methods of exploding the mixture were acting together, as well as when they were acting separately. The petrol had paid duty and was good, and the carburettor jet was not blocked; even the petrol tap was not turned off, neither were the brakes on nor did they foul the drums. The questions submitted were: Does the engine need dismantling? Has a crank-bearing fired? Is there a broken piston-ring? Has a ball-bearing in the transmission-gear seized? On examination it was found that the engine started easily and the carburettor, when the needle valve was agitated, flooded, so there was no doubt that the petrol-supply was correct, and as the automatic air inlet worked it was positive that the mixture was suitable. The brake drums were cool after a run, so they could not be holding the car back, the gear-box bearings were likewise cold, so that loss of power due to friction in transmission was eliminated. The simplest explanation was then ignition disturbance. The engine was started with both ignitions on, and each plug, with the engine running, was shorted by means of the metal end of a screw-driver; it was then discovered that the high-tension plug of No. 3 cylinder did not spark, also when the magneto plug of that cylinder was taken out and shorted on the frame that that plug did not spark at the points. The problem was thus very simple: the engine lost power because, even with double ignition, one cylinder was missing fire, one plug had become oily and so was shorting internally, the other did not fire because the trembler contact blade-screw at the commutator had worked loose and the platinum points there were too far apart. After an adjustment that took but a few minutes the car regained all its lost power. I only make mention of this case as it shows that motor worries are often due to very trivial causes, and that these, with a little thoroughness in examination, can, as a rule, be quickly detected, and then, of course, equally rapidly cured.

The 14-16 H.-P. Darracq.

This car belongs to that type of automobile which is now so popular; it is one of the light fours, light on tyres, and also, because of its moderate but ample horse-power, light on its owner's pocket in the matter of tax and petrol. Personally, I believe that the popular demand that even small cars should have four-cylinder engines is wrong, especially for members of the profession who drive themselves. With a single cylinder the owner, in order to obtain a decent speed, keeps the ignition and compression at concert pitch, and soon learns how to manipulate his throttle and ignition levers so as to get the best result out of his engine. With a four cylinder there is a reserve of power, consequently the owner may not always keep his car at concert pitch. Still, of course, four cylinders are more silent and more powerful anyway when kept tuned up. But to return to the car under consideration. It has a wheel base of 8 feet 6 inches and can well take a roomy side entrance body or, for those who like to be driven can be made into a landaulet. The engine is of the *moteur bloc* type, the four cylinders and valve chambers being all cast in one piece; the bore is 85 millimetres and the stroke 100 millimetres. The valves are all on one side and operated by a single cam shaft, and in those fitted with double ignition this shaft is brought forward to operate the commutator, used in conjunction with the battery and coil. I quite recently had a good proof of the real need of having two separate systems of ignition. I was out in my car, driving on the magneto, when she suddenly stopped; the accumulator method of exploding the mixture was switched on, and without any delay I was able to proceed home. Inspection then showed that the magneto could not have been repaired on the road; the carbon brush was clean, the platinum points were the correct distance apart, and they made and broke contact correctly. The fault was with the slip ring which had burnt out, and the armature also required recovering, defects which could not possibly have been seen to on the road. So if any medical man invests in these certainly excellent little cars I strongly counsel a double ignition. Personally, I have had some experience and some most delightful trips on a 1907 type of car, as my partner owns one, which he has used daily for over a year, and during that time his repair bill merely amounted to 9*d*. The older type had, however, serious constructional defects: the magneto was on the valve side of the engine, and in order to get the valves out, so as to grind them in, the magneto had first to be removed; the valve lifters, too, had solid ends. The new 1909 type, which I inspected in course of construction at the well-equipped Darracq works at Suresnes, is greatly improved; the magneto is now on the other side of the engine and is driven by the shaft that drives the water circulating pump. It is held in position by a screw clamp, which abuts against a lug specially cast for the purpose on the cylinder; thus on the release of one accessible nut the magneto can be removed. Those who have had to first drop the shield and then crawl, to the damage of their attire, under the car frame to undo two nearly inaccessible nuts will, I am convinced, appreciate this undoubted great improvement. The valve lifters, too, have rollers where they come in contact with the cams and are made of steel working in cast-iron guides. The carburettor is of the float feed and spray type, and an automatic air intake ensures great economy in fuel consumption—an important point now that there is a duty on petrol. The only one feature that I should like to see altered about this part is, that I should

like to be able to remove the jet without taking down the carburettor, and I should also welcome a carburettor that could be dismantled without having first to slacken the inlet and exhaust pipes. Still, as a fine gauze washer is interposed where the petrol pipe enters the float chamber, there is little likelihood of having to do this operation. I have driven one of their higher powered cars, and only once was I held up by a blocked jet, and then that was my own fault, as instead of cleaning the gauze strainer when it was blocked by dirt I pushed a skewer through it, and thus permitted foreign matter to get to the jet. Lubrication is well provided for, and in lieu of the not altogether satisfactory pressure feed lubricator, one worked by a pump, operated by a rod from a little crank on the end of the cam shaft, is fitted. The clutch is of the leather-faced cone type, and the gear box is fitted with three forward speeds and a reverse speed. The propeller shaft transmitting the power from the gear box to the live axle has two flexible couplings, and a torque stay, anchored to the frame by a spring, takes up the thrust. A straight through quadrant of the Panhard type is employed for the gear changing. The throttle is worked by either a lever on the steering column or by a small foot pedal; the latter is probably the best to use, as it leaves the hands free for gear changing and performing on the hooter. The brakes are of the internal expanding pattern, and means for adjustment and taking up of wear are provided. As to the running of the car there is little to be said except that the engine has a good reserve of power and that nearly all hills can be climbed on the second gear, and that the liveliness of the car and the way it can be handled are delightful.

Messrs. Darracq also manufacture a single-cylinder two-seater, as well as an 8-10 h.p. and a 10-12 h.p. two cylinder; the latter is also turned out as a four-seater, with either a phaeton or detachable tonneau body. I have had many opportunities of testing these models, opportunities, too, when the cars have been driven and looked after by medical men or their chauffeur grooms, which of course is a better means of judging, than when the car is sent from the makers with an expert driver, and I must say that I have invariably found them trustworthy. In addition, the springing is luxurious, an especially important point for a medical man, who has often to spend from seven to eight hours a day in his car.

THE INSTITUTE OF PHYSIOLOGY AT UNIVERSITY COLLEGE, LONDON.

THE new Institute of Physiology at University College, London, was formally opened on Friday, June 18th, by the Right Hon. R. B. Haldane, M.P., Secretary of State for War, and the occasion was made into an interesting academic festival. The Vice-Chancellor of the University of London, Professor M. J. M. HILL, presided, and throughout the inaugural ceremony care was taken that those present should realise to the full that the new building has an importance other than that of the establishment of a first-class physiological laboratory in one of the most important teaching centres of London. Mr. HALDANE, who in the present Government may be considered the "Minister for Universities," regarded its successful completion as a sign that England was fully alive to the importance of promoting higher education, and he quoted as analogous examples of this righteous spirit the recently founded universities of Birmingham, Liverpool, Manchester, Leeds, Sheffield, and Bristol, and the new universities of Ireland. With such examples before him, he found it quite impossible to accept the gloomy views so often advanced as to the backwardness of Great Britain in the more advanced departments of knowledge. It was a healthy sign, he said, that the Government and the Treasury were waking up to the necessity of meeting the requirements of higher learning. He regarded the Institute of Physiology of University College, London, as an object lesson to the country.

In an introductory address, Lord REAY, President of University College, London, struck an imperial note, pointing out that the establishment of the Institute of Physiology was one of the ways in which University College had done its utmost to uphold the idea that it was the mission of London to be the highest centre of learning within the Empire. He expressed the hope that the generosity of the friends of the College would make it possible shortly to complete the full scheme of an institute of preliminary medical studies—anatomy, pharmacology, and physiology.

Sir ARCHIBALD GEIKIE, President of the Royal Society, and Dr. H. A. MIERS, Principal of the University of London, moved and seconded a vote of thanks to Mr. Haldane, and the latter referred especially to the rapid development of corporate life within the university.

Professor E. H. STARLING, the only other speaker on the list, expressed in his own name and that of his colleagues the gratitude they felt to Mr. Haldane, to the eminent foreign biologists, and to others present for the sympathy they had shown. Mr. Haldane, he contended, was specially fitted to perform their opening ceremony because of the interest he took in the progress of University education, and because in his army scheme the lesson he had tried to instil was the ideal of service for the good of the community, an ideal essential in the work of the laboratory. The workers who were forming a brotherhood among the nations were, he contended, leading the way towards the brotherhood of the nations. He imagined that Mr. Haldane, through the lines of his battalions, could see a time when civilised men would all be common workers in the service of humanity. In conclusion, he claimed that the presence of the Presidents of the Royal Colleges of Physicians of London and Surgeons of England constituted the acceptance by the medical profession of the principle that all medical knowledge must be based on experiment.

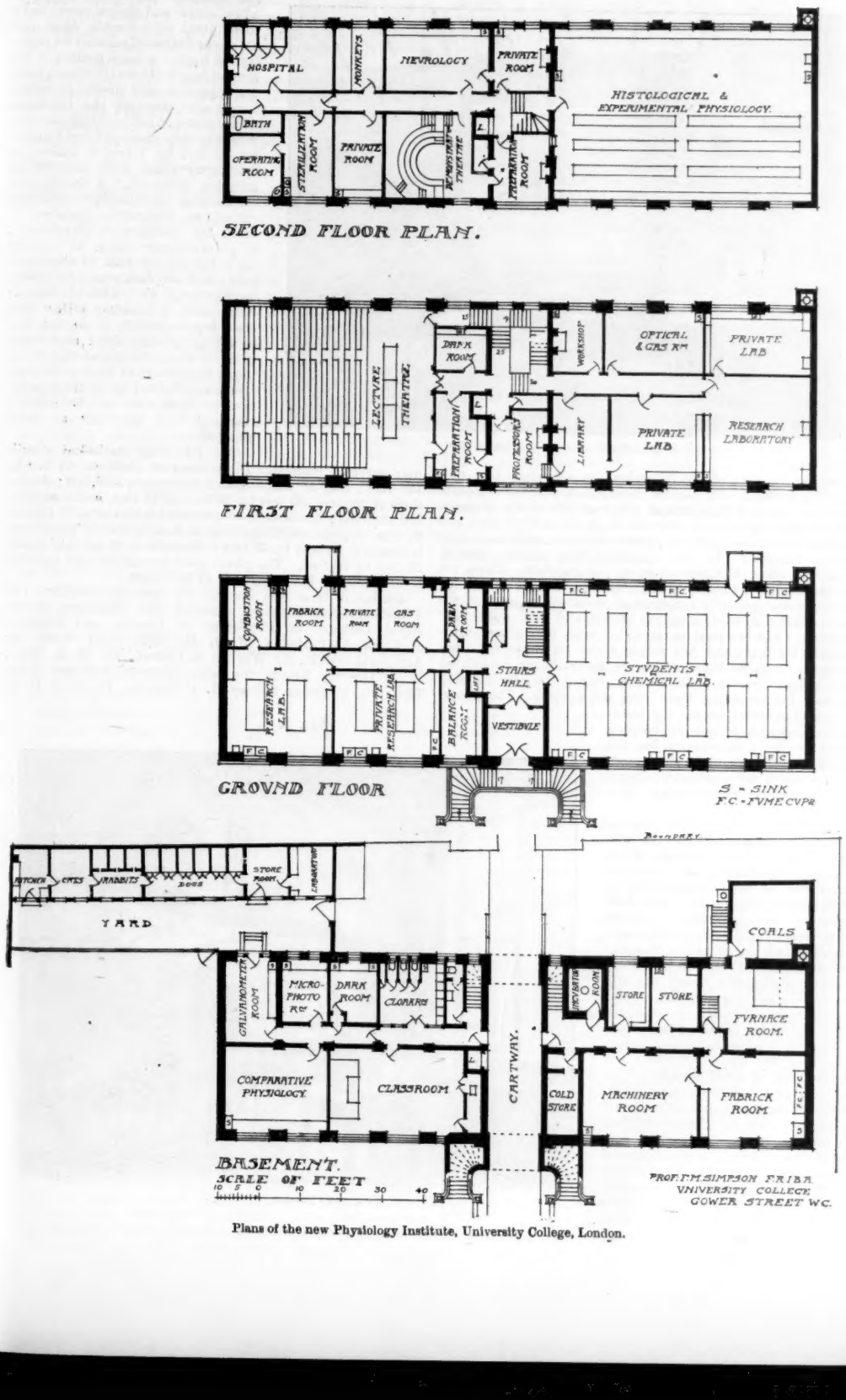
In his reply, Mr. HALDANE compared the present knowledge of science as a link between civilised nations to the knowledge of Latin possessed by scholars during the Middle Ages. Mr. Haldane then inspected the University of London Officers' Training Corps, which paraded, some 250 strong, in the quadrangle.

The Institute of Physiology remained open until 7 o'clock, and was inspected by those who had attended the ceremony of inauguration. Substantially, the building consists of four floors, basement, ground, first and second floors. (Fig. 1.) Each of these, except the basement, contains one large room about a third of the area of the building, devoted on the ground floor to physiological chemistry, on the first floor to a large lecture theatre, and on the top floor to a laboratory of histology and experimental physiology. These three rooms, a small demonstration theatre, well equipped with apparatus, recording and otherwise, and so constructed that 40 students can obtain a full view of any experiment, and a classroom for tutorial and other purposes in the basement, constitute the portion of the building devoted to the work of the students. The rest of the building is allocated to research.

The most notable feature of the teaching portion of the laboratory is the magnificent lighting that has been obtained, the maximum space structurally possible having been devoted to windows. Elaborate precautions have also been taken for efficient ventilation, a fan having been installed capable of providing a current of 12,000 cubic feet a minute through any one of the three large rooms. The fan normally removes vitiated air from the different rooms in the building, but by means of shutters in the main extract flues can be concentrated exclusively on any one of the more important rooms. Among other good features are the following. The six double fume cupboards in the chemistry laboratory are extensive and well lighted. On the west side of the laboratory is a balcony roofed in with glass but open at the back and sides, and thus suitable for manipulations involving the production of objectionable fumes. The lecture theatre is furnished with an ordinary lantern and the large epidiascope of Leitz. The windows are provided with light-tight blinds that can be raised or lowered in 20 seconds by means of electric motors, set into action by switches on the lecturer's table. The histology and experimental physiology laboratory is lighted by large windows at both sides and by a continuous skylight. Three of the histology benches are provided with continuous shafting, and five tables are also specially fitted for the purpose of experimental physiology, and in this laboratory, as throughout the building, all gas- and water-pipes are easily accessible and differentially coloured. Annexed to the laboratory is a small preparation room.

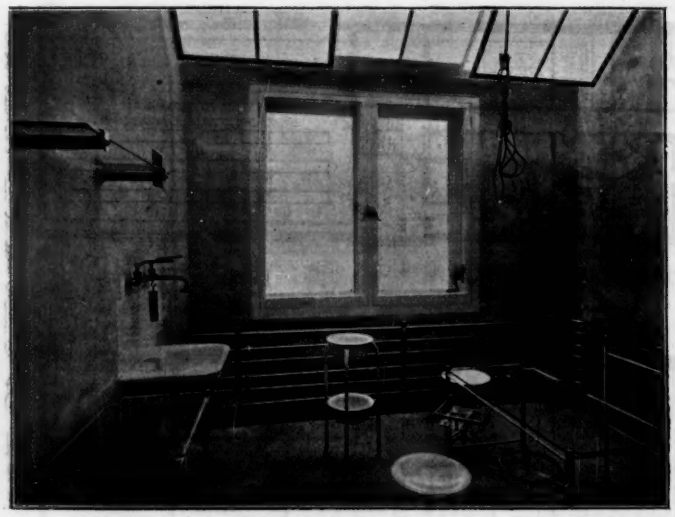
In the large portion of the building devoted to research there are, apart from the thoroughness with which such general

FIG. 1.



Plans of the new Physiology Institute, University College, London.

FIG. 2.



Aseptic Department. Operating Room.

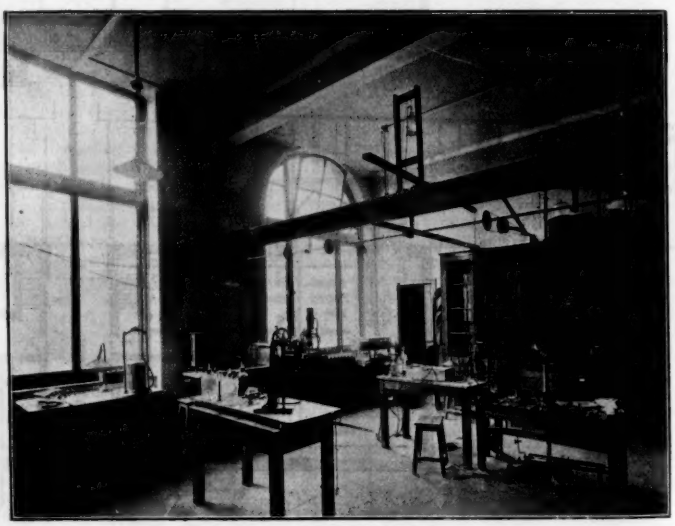
principles as that of specialisation are accepted, two outstanding features—the aseptic department and the elaborate provision made for the health and comfort of the animals. The aseptic department (Fig. 2) is on the second floor and consists of sterilisation-room, operating-room, bath-room, and animal hospital. In the operating-room similar precautions are taken to those taken in the hospitals. There are double windows to enable the room to be kept at a high temperature, specially constructed radiators to prevent the accumulation of dust, a supply of hot and cold water, and so forth. The hospital is provided with four glazed-brick kennels for dogs, and has ample space for cages for other animals. Outside the building is an outhouse containing half a dozen rooms, with kennels, cages, &c., for keeping animals, for preparing their food, and so forth. The second floor also contains a room for histological research, a room for keeping monkeys in, a laboratory for the study of neurology, and a small room for the use of the teachers in charge of histology or experimental physiology.

Apart from the lecture theatre and its preparation-room the first floor consists of the Thomas Webb research laboratory, and contains six rooms, a departmental library with accommodation for about 4000 volumes, the professor's private laboratory (Fig. 3), fitted with shafting and electric power and a chemical bench, a general research laboratory somewhat similarly fitted, but also containing two kymographs, a room for accurate physical observations, occupied by Dr. Bayliss, a large room for optical work or for investigations requiring the use of mercury gas pumps, and a small workshop. A small mezzanine floor contains laboratories, cloak-rooms, and so forth, and a committee-room. The ground floor is reserved for chemistry and contains a balance-room, a well-equipped private laboratory for the assistant professor in charge of physiological chemistry, a combustion-room, a distillation-room with an annexe roofed with glass and similar to that described above in connexion with the students' laboratory, a private office, a gas- and optical-room, and a room fitted with double doors and able to be darkened suitably for polarisation work. A large portion of the ground floor is devoted to stoves, heating apparatus, and similar purposes, but it also contains the following useful rooms: a refrigerating chamber with a storage space of 6 feet 6 inches by 10 feet by 7 feet 6 inches; a machinery room, with centrifuges, grinding mills, &c.; a *fabrik-raum* for working up materials on a large scale; an incubator chamber; a room for comparative physiology; a galvanometer room, at present used for the servants of the institute; and two dark rooms for photomicrography, &c. One of these is fitted with a masonry pillar with slate top to provide a support, free as far as possible from any vibration. It should be added that in the upper three floors of the building the rooms are divided up by Mack partitions so that they can be entirely rearranged on any floor at small expense.

The following statistical details may prove of interest. Dimensions of institute, 44 feet by 144 feet; cost of building and equipment, £20,500; dimensions of theatre, 50 feet by 14 feet by 19 feet, accommodates 200 students; dimensions of chemical laboratory, 62 feet by 40 feet: dimensions of histology and experimental physiology laboratory, 63 feet by 42 feet; dimensions of animals' sheds, 12 feet by 76 feet. The power used throughout the building is electricity. The heating is by hot water.

Academic dress was worn at the opening ceremony and a distinguished company included the Presidents of the Royal Colleges of Physicians of London and Surgeons of England, Professor M. J. M. Hill, Lord Reay, Sir Archibald Geikie, Sir William S. Church, Dr. H. A. Miers, Dr. T. Gregory Foster, Sir Felix Schuster, Professor Millar Thomson, Professor Sidney H. C. Martin, Professor D. S.

FIG. 3.



Professor's private laboratory.

Capper, Dr. J. Rose Bradford, Professor G. D. Thane, Professor E. H. Starling, Professor F. M. Simpson, Lord Cromer, Sir Philip Magnus, Sir Edward Bush, Sir Thomas Barlow, Sir John Tweedy, Sir Dyce Duckworth, Mr. Sydney Holland, Sir J. Batty Tuke, Sir Norman Lockyer, Sir William Ramsay, Sir Alexander Pedlar, Sir James Reid, Sir Albert Rollitt, Sir J. W. Swan, Sir Victor Horsley, Sir T. B. Crosby, Dr. C. W. Kimmins, Professor A. Caldecott, Dr. T. Buzzard, Professor A. W. Crosley, Lieutenant-General Laurie, Professor A. R. Cushny, Dr. T. L. Mears, Dr. A. D. Waller, Mr. Stephen Paget, Dr. Ludwig Mond, Mr. P. M. Wallace, Mr. George Alexander, Mr. R. Blair, Mr. Hugh Chisholm, Dr. C. Carey Foster, and Dr. W. Garnett.

THE MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

ON June 21st a conference was held at the Institute of Hygiene on the subject of the Medical Inspection and Treatment of School Children. The conference room was well filled with an audience composed of medical men and persons interested in education, and the President of the Institute, Sir W. H. BENNETT, occupied the chair.

The PRESIDENT explained that the meeting had been called in order that some definite information on the many important questions involved in the subject of medical inspection might be obtained and forwarded to the proper quarter. Two points must not be lost sight of—the danger of minimising parental responsibility and the recognition of the interests of the medical practitioner in relation to the treatment of State-educated children.

The first motion, proposed by Dr. J. C. THRESH (medical officer of health of Essex) called upon the Board of Education to issue definite instructions securing uniformity in the statistics relating to medical inspection. Dr. Thresh had prepared the following statement:—

Statistics based on Reports received from 20 Counties and Towns in England (Children Examined, over 40,000).

Reported to be suffering from—	Percentage.		
	Lowest.	Highest.	Apparent average.
Tuberculous disease	0·015	4·3	0·8
Bodily deformity	0·04	6·0	2·4
Defective nutrition	0·3	19·0	8·0
Uncleanly head and body ...	1·0	60·0	18·0
Decayed teeth	0·7	25·0	8·0
Enlarged tonsils	2·0	23·0	13·0
Adenoids	1·5	21·0	8·0
External ear disease	0·8	3·5	1·8
Eye disease	0·4	8·7	3·0
Defective vision	4·1	39·0	13·0
Mentally defective	0·3	4·2	1·3
Heart disease	0·4	5·0	1·5
Lung affection	0·1	2·4	1·4
Skin diseases	0·9	2·1	1·9

The total result of the figures was that 74·9 per cent. of the children examined required attention, though some allowance must be made for duplicates. Dr. Thresh remarked that the voluntary hospitals should not be expected to deal with more than a minority of these cases.

Dr. J. F. BUTLER H. HOGAN seconded the motion, which was carried unanimously.

Mr. J. HERBERT PARSONS proposed the second motion:

That the various education authorities should be responsible for seeing that the serious defects revealed by the medical inspection of school children are promptly attended to; that in the methods adopted due remuneration should be secured to the medical practitioners doing the work; and that the authorities should, as far as possible, recover the cost, or a portion thereof, from the parents of the children attended.

Mr. Parsons expressed himself in favour of the establishment of school clinics for ophthalmic cases. It could be done quite satisfactorily without very large expense. The hospitals would not suffer if the school oculists, in the case of London, did the work which their titles suggested, instead of performing duties which teachers or nurses could easily be instructed to do. But why treat all classes of disease in school clinics? To treat adenoids the clinic would have to be a hospital. Different methods should be adopted to meet different circumstances.

Mr. H. S. BARWELL thought that it would be a good thing if the hospitals would fall in with the wish of the London County Council to utilise existing institutions, provided it was certified that patients were unable to pay, and that the almoner's department should watch the cases. Payment should not be in the form of subscriptions or donations or it would open the door to the suggestion that the Council should be entitled to appoint a certain number of governors. The Council should pay by means of a capitation grant of an elastic kind. He feared that, if the hospitals said "No" and compelled the Council to face the question of starting clinics, the whole matter would lapse, and especially that dental treatment, which had not yet been decided upon, would never be undertaken.

Dr. DAVIDSON described the treatment of school children by public authorities as another attempt to encroach on the rights of the general practitioner.

In reply to Dr. LILIAN CHESNEY, who asked what was to be done in country districts where hospitals were not available,

Dr. STEPHENSON described the practice in Somerset in dealing only with ophthalmic cases. The school population was 60,000 and the yearly inflow of new children was 7000. About 10 per cent. required to have their refraction tested. A good proportion of this 700 needed to be seen more than once a year; by doubling the figure they got 1400. Perhaps 400 were attended by other means than by the county council. They appointed an ophthalmic surgeon for £100 for ten weeks' service, and he could see 20 children per day per school week of five days, or 1000 children in ten weeks. Spectacles were bought under a large contract for 2*s.* 6*d.* a pair and supplied free to the comparatively few parents who were unable to pay for them.

The motion was then carried with three dissentients.

Dr. WILLIAM HILL moved a further proposition to the effect that educational authorities should avail themselves, in the first instance, of existing institutions for the treatment of children whose parents were unable to pay. This would be an excellent thing, he said, for large and small hospitals.

Dr. BARLOW seconded, on the ground that general practitioners would lose nothing if this principle were adopted.

The motion was carried.

A vote of thanks to the President terminated the proceedings.

BRITISH MEDICAL BENEVOLENT FUND.

AT the June meeting of the committee 15 cases were considered and grants amounting to £129 made to 12 of the applicants, two cases being passed over and one postponed for further inquiry. Dr. F. G. Crookshank was appointed honorary local secretary at Barnes and Dr. C. E. Solomon an additional local secretary at Liverpool. Appended is an abstract of the cases relieved:—

M.R.C.S., L.R.C.P., aged 38 years. Has had a small country practice but for the last eight months has been incapacitated by general paralysis of the insane and is now confined in an asylum. Small savings have been quite exhausted by providing a locum tenens and by unavoidable expenses of the illness, and so far it has not been possible to sell the practice. Two children, the younger only a few months old. Voted £10 to the wife.

Daughter, aged 53 years, of late M.R.C.S., L.S.A. No income; health too indifferent to undertake laborious or continuous work, but obtains a light post as companion when able to do so. Relieved three times, £30. Voted £10.

Daughter, aged 58 years, of late L.S.A. No income. Has supported herself as housekeeper or companion for the last 14 years, but is now incapacitated by locomotor ataxy. Voted £12.

Widow, aged 63 years, of M.D. Edin. Quite unprovided for a husband's death 18 months ago and endeavours to make a living by letting lodgings. Is allowed a few shillings a week by some distant relations. Voted £6.

Widow, aged 90 years, of F.R.C.S. Since husband's death has been living on the proceeds of the sale of furniture and now receives an Old Age Pension. No children; is quite blind. Voted £18.

Daughter, aged 52 years, of late L.R.C.P. Edin., L.S.A. Unable to earn a living on account of heart disease and defective eyesight, and is dependent on two sisters who have to support themselves and can ill afford to help. Relieved four times, £36. Voted £10.

Daughter, aged 60 years, of late M.R.C.S., L.S.A. Has a pension of

£14 a year from the Admiralty and receives a little help from Lloyd's Patriotic Fund. Relieved 12 times, £70. Voted £5.

Daughter, aged 62 years, of late M.R.C.S., L.S.A. No income, and being mentally deficient is dependent on a relation who can only help with difficulty. Relieved three times, £36. Voted £12.

Widow, aged 62 years, of L.R.C.P., L.R.C.S. Edin. Since being left a widow, nearly 15 years ago, has supported herself by taking lodgers but finds the necessary work increasingly difficult. Two children, one just self-supporting, the other still at school. Relieved twice, £24. Voted £12.

Widow, aged 31 years, of L.S.A. No income; endeavours to maintain herself by nursing, but has been incapacitated during the last three months by acute rheumatism, and is told that a rest is absolutely essential before taking further cases. Three children, ten to three. Relieved twice, £15. Voted £10.

Widow, aged 58 years, of L.R.C.P., L.R.C.S., Ireland. Since husband's death has endeavoured to support herself by maternity nursing, but is now nearly blind. Relieved 15 times, £137. No children. Voted £12.

Widow, aged 59 years, of M.D. St. Andrews. No income. Slight occasional help from children. Lets lodgings, but has been obliged to part with some of her furniture to make both ends meet. Relieved five times, £60. Voted £12.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

A COMPLIMENTARY DINNER TO DR. J. F. W. TATHAM.

THE retirement of Dr. J. F. W. Tatham from the post of Superintendent of Statistics in the General Registry Office was made an opportunity for entertaining him to a complimentary dinner at the Grand Hotel on June 17th.

The chair was occupied by Sir Shirley F. Murphy, who was supported by Dr. F. J. Allan, Dr. Bushell Anningson, Dr. G. Paddock Bate, Dr. Sidney Barwise, Dr. W. A. Bond, Dr. G. S. Buchanan, Dr. H. Timbrell Bulstrode, Mr. Brudenell Carter, Dr. A. K. Chalmers, Dr. S. Monckton Copeman, F.R.S., Dr. Sidney Coupland (Lord Chancellor's Visitor in Lunacy), Mr. R. Musgrave Craven, Mr. George H. Day, Dr. T. Hugh Dickson, Sir William Dunbar (the Registrar-General), Lieutenant-Colonel R. H. Firth, R.A.M.C., Dr. Wilfred W. E. Fletcher, Dr. F. E. Fremantle, Mr. Kenneth Goadby, Dr. James Kerr, Mr. George King, Mr. R. O. K. Lempfert (representing Dr. W. N. Shaw, F.R.S.), Dr. R. Bruce Low, Lieutenant-Colonel W. Grant Macpherson, C.M.G., R.A.M.C., Dr. J. Middleton Martin, Dr. J. C. McVail, Mr. G. Millson, Dr. A. A. Mussen (representing Dr. E. W. Hope), Dr. Arthur Newsholme (principal medical officer to the Local Government Board), Dr. G. Newman, Dr. James Niven, Colonel J. Lane Notter, Dr. H. Franklin Parsons, Dr. J. F. Payne, Dr. George Reid, Professor W. J. Simpson, Dr. S. Squire Sprigge, Dr. T. H. C. Stevenson, Dr. R. Deane Sweeting, Dr. J. F. J. Sykes, Mr. A. C. Waters, Dr. B. A. Whitelegge, C.B. (H.M. Chief Inspector of Factories), Dr. Dawson Williams, Dr. C. W. F. Young, and Mr. G. Udney Yule. Dr. W. H. Hamer and Mr. Herbert Jones acted as secretaries.

After the loyal toasts had been honoured Sir SHIRLEY MURPHY proposed the health of Dr. Tatham, and in referring to the long connexion of the latter with all that concerns public health, he said: "We might with appropriateness speak of his 16 years' service at Somerset House as the crowning work of his life. Some people would say that they had never heard of Dr. Tatham, but we who are engaged in public health work know more than any others how greatly this country is indebted to him and are therefore delighted to gather together to do him honour. Dr. Farr, one of his predecessors, realised what could be made of the classification of diseases, and his system was so able that it only wanted modification. Dr. Tatham, in modifying it, has brought it into line with modern scientific ideas." Sir Shirley Murphy continued by saying that he would not be exaggerating if he alluded to the joint work of Dr. Tatham and of the Registrar-General as being one of the most active causes that could be found in diminishing the death-rate in this country. The tables that had been published in the reports of the Registrar-General were lessons of the first importance, and those relating to infantile mortality had thrown much light upon the causes of death among young children. When the system of death registration was first proposed it was not intended that the cause of death should be included in the information asked for, and it was only during the passage of the Bill through the House of Lords that this requirement was inserted. Although medical certification of death became compulsory in 1874, Dr. Farr some time previously had approached the Royal Colleges and the Society of Apothecaries with a view to inducing medical men to certify the cause of death voluntarily, so that it was due to the medical profession to say that in 1874 Parliament was only continuing work which had been engaged in by our profession for some time. One of the earliest subjects which attracted the attention of the Society of Medical Officers of Health was the necessity of knowing not only the number of cases of death, but of illnesses also, and Dr. Tatham, while medical officer of health of Manchester, took up the question of notified disease and made arrangements with his colleagues to send him records of disease in their districts, he himself distributing the combined records among the reporters. When Dr. Tatham went to Somerset House the Local Government Board took over and extended this most useful work. During the time that Dr. Tatham had been at Somerset House great changes had taken place in medical knowledge, and it was not too much to say that their guest had at all times placed the best medical knowledge at the service of the Registrar-General. After referring to the admirable work which Dr. Tatham had done as chairman of the Statistical Committee of the Cancer Research Fund and as a member of the Inter-Departmental Committee on Physical Deterioration, Sir Shirley Murphy concluded by recalling the fact that their guest's earlier life had been spent as a public health administrator, and pointed out the advantages to the State of being able to obtain recruits for responsible offices from among those who had already shown themselves to be men of parts. In conclusion, Sir Shirley Murphy said that Dr. Tatham had always seemed to be the servant of the public health world, and so ready was he to render help to all those who asked for it that he had made them feel that they had a right to his services and to his assistance.

Sir WILLIAM DUNBAR said that he was glad to be present that evening, not only to show his appreciation of the work of Dr. Tatham, but also to have an opportunity of thanking medical practitioners for the way they had helped his bureau. Sir Shirley Murphy had spoken of the remarkable services of Dr. Tatham, and he was in the fortunate position of being able to confirm the chairman's words as few others could. The seven years he had spent at Somerset House had been made much happier and much pleasanter because it had been his good fortune to be associated with such an able colleague as Dr. Tatham. Indeed, not being himself a statistician, it would have been quite impossible for him to have written the report on the last census without the assistance of Dr. Tatham, of Mr. Noel Humphreys, and of Mr. Waters. Referring to the declining birth-rate, the Registrar-General said that he did not hold the pessimistic views which were attributed to some persons. He certainly did not consider that England was going downhill.

Dr. TATHAM, in response, said that when he realised the import of the presence of so many eminent public health officers, he was impressed with the fact that he never knew that he had so many sympathetic friends. He felt that he did not owe the honour that had been done him to any merits of his own, but rather to the general feeling of comradeship that existed between members of the medical profession and himself. Statistics, he said, must be more or less defective, but his aim had always been to reduce their defects to a minimum. Speaking with an experience of 16 years, he could still express a very high opinion of the value of the certification of the cause of death by medical men, and the replies to the 5000 letters of inquiry which were sent out each year from the General Registry Office with a view of clearing up doubtful statements were distinctly helpful in securing accuracy. When compared with the statistics of foreign countries we had nothing to be ashamed of in those of our own. When appointed Superintendent of Statistics he did not sever his connexion from public health administration without much searching of heart, but his life at Somerset House had been made happier and easier from the loyal support he had received from his colleagues in the medical profession as well as from every member of the staff. He expressed the hope that his successor would be no less fortunate in this respect.

Dr. WHITELEGGE submitted the toast of "The Chairman," who responded in literally two words.

SANITATION IN INDIA.

VIII.[1]—PLAGUE ADMINISTRATION IN THE UNITED PROVINCES IN 1907.

THE year 1907 unfortunately gave a very severe recrudescence of plague after the comparative lull of the previous year, and although the mortality figures did not reach those of 1905, yet the months of March, April, and May witnessed the severest epidemic that has yet visited these provinces, no less than four-fifths of the total mortality of the year occurring in these three months. The total number of cases was 257,666, as against 58,489 and 305,737 of the two preceding years. The highest mortality occurred in April, reaching 85,979 cases. The epidemic thus reached its zenith somewhat later than usual, and lingered somewhat longer into May and June. Only two districts remained free from the epidemic, 46 out of 48 being more or less severely attacked. The noteworthy features of the epidemic were the above severe mortality in March, April, and May, its later course thus approximating more closely as regards season to the ordinary Punjab type, and also the absence of any severe recrudescence in the last three months of the year. With regard to the cause of the latter feature, various hypotheses can be put forward, such as the higher degree of immunity prevailing amongst the rats, consequent on the severity of last season's disease, the same severity having diminished their numbers, or these rodents were unable to find a sufficiency of food in the vicinity of man owing to the famine; again, owing to drought there was in all probability a diminished prevalence of fleas. Lastly, the people may have become more sensibly inclined to the prophylactic measures of rat killing, evacuation, and inoculation. The severe and later extending mortality from March to May may be partially explained by the exceptional mildness of the early part of the hot weather. The methods now relied on in dealing with outbreaks are evacuation and inoculation; these will undoubtedly stop any epidemic if applied rapidly and efficiently. Disinfection is not now insisted on, as the benefit ensuing is not commensurate with the inconvenience involved, and if used as a substitute for evacuation it is useless, and if in addition to it unnecessary. Where asked for, however, an emulsion of kerosine oil—"Plunas"—is recommended. The chief feature of the plague policy of 1907 has been the attempt to popularise inoculation. Major J. Chaytor White, I.M.S., to ensure this visited the headquarters of most of the districts and lectured on the disease and its prevalence, giving special prominence to preventive inoculations, showing how the fluid was prepared and what precautions were taken to render accident impossible. During the year 34,168 inoculations were performed; only nine of those inoculated have died from plague. A memorandum was published last August giving many notable instances of the saving of life by this method. The prejudice against this life-preserving prophylactic measure is evidently breaking down; had any severe recrudescence of the disease appeared the chief plague officer, Captain R. F. Baird, I.M.S., considers that thousands would have been inoculated instead of the hundreds who have actually submitted to the operation. Regarding the duration of the protection against infection conferred by inoculation, it certainly lasts through the succeeding year's epidemic, and some degree even remains after an interval of five years. Thus the benefit may remain after several years. The general impression that the protection lasts only from six months to a year and then quickly vanishes is erroneous. Other methods of prevention were also carried out—namely, sanitary inspection and an energetic campaign against rats by traps and poisoned baits, the trap recommended being the "wonder" and the poison "the common-sense" poison.

Lastly, we may mention that the Advisory Committee on plague investigations in India states that, as the result of a large number of experiments, it has been determined that though plague may be communicated to rats by feeding them on large quantities of infected material, yet that in nature this rarely or never occurs, and that rats do not become infected by eating their dead fellows; that plague bacilli exist and multiply in large numbers in the alimentary canal of fleas fed on plague-infected rats, and thence pass out in the dejecta, and that the latter can then infect healthy animals. The flea, however, is merely a passive transmitter of the disease. This well-written report on plague in the United Provinces reflects the highest credit on its author, Captain Baird, the chief plague officer of the Provinces.

VACCINATION.

Burma.

Major C. E. Williams, I.M.S., the Superintendent-General of Vaccination, furnishes the report concerning this measure for Burma for 1907. It would appear that many serious defects which have been brought to notice in previous reports still persist, although the work of the vaccination department in the last three years shows much improvement. The total increase in the number of operations in the province outside Rangoon is only some 11,000 per annum, and the number of successful vaccinations is still about 30 per 1000 of the population. The average number of operations performed by each vaccinator was actually less than the average of the last triennium. The difference in results in adjoining districts, where the conditions of work are similar, is striking. Thus there were 3100 a year in the Sagaing district, against only 1200 in Shwebo, and again 1300 operations in both Bassein and Myaungmya, against 550 and 390 respectively for Ma-ubin and Pyapôn. This difference is in part attributed to inefficiency and want of tact on the part of the vaccination staff. Inoculation is still practised freely in rural areas and is reported to have caused outbreaks of small-pox in certain districts. A Bill will shortly be introduced to prohibit inoculation in any rural area, but the operation of this Bill will be at first introduced only where the vaccination department is rendered thoroughly efficient. In order to provide for better supervision the service of native superintendents has been reorganised and enlarged from 16 to 44. Major Entrican, I.M.S., receives well-deserved praise for his work at the vaccination depôt. In Rangoon a serious outbreak of small-pox in 1905–06 resulted in a great excess of work, 114,000 operations having been performed in the triennium ending March 31st, 1908, as compared with 44,000 in the previous three years. We notice with much pleasure that the proposed portable haversack for vaccinators, alluded to in last year's vaccination note, has been greatly elaborated. The haversack and its contents are the joint result of the labours of the Deputy Sanitary Commissioner and of Captain R. D. Saigol, I.M.S., the best features of whose separate designs this equipment combines.

Bengal.

The seventh triennial report of vaccination in Bengal for the years 1905–06, 1906–07, and 1907–08 is presented by the Sanitary Commissioner for Bengal, Lieutenant-Colonel F. C. Clarkson, I.M.S. The total number of operations performed in the province during 1907–08 was 2,058,371, against 2,037,273 in 1906–07 and 2,041,230 in 1905–06. There was an average increase of 279,678 cases. This increase is very satisfactory in view of the adverse circumstance existing, such as scarcity, in many parts of the province. The ratio of success was also marked, being 99·22 and 69·97, against 98·77 and 61·94 of 1903–05, for primary vaccination and revaccination. The results, indeed, would have been far better still had it not been for the scarcity existing in the province, which made the poor people reluctant to offer their children for vaccination during the year owing to their inability to pay the vaccinators' fees. Several useful reforms have been introduced into the department, tending to better work and greater efficiency, such as the following: increase of pay of the subordinate inspecting staff with a view to secure greater efficiency; better education of the inspecting staff and the vaccinators; general introduction of antiseptic vaccination throughout the province (this has been attended with beneficial results, there being a general diminution of sore-arm); general introduction of the system of grants of rewards to vaccinators; general introduction of lanoline lymph in the districts comprised within the Bengal and Orissa circles; supply of lymph direct to vaccinators in the districts supplied by the Calcutta depôt; this has undoubtedly facilitated work and prevents the lymph from deteriorating. Lastly, special measures have been adopted for pushing on vaccination in Orissa. Here there had been an abnormally high mortality from small-pox for years

[1] Nos. I., II., III., IV., V., VI., and VII. were published in THE LANCET of April 10th (p. 1067) and 24th (p. 1199), May 1st (p. 1269), 15th (p. 1412), and 22nd (p. 1480), June 5th (p. 1630), and 19th (p. 1773) respectively.

past, which was discovered to be mainly due to the backward state of vaccination, resulting from the opposition to the operation. Steps have now been taken, due to the intervention of Colonel Clarkson, whereby the civil surgeon is furnished with the tour programme of the district magistrate, so that the subordinate vaccination inspecting officers may appear before him in the mufassal and invoke his aid when necessary. A perusal of this interesting report shows how thoroughly the Sanitary Commission for Bengal is directing the vaccination department.

With this article we conclude our summary of the reports which have reached us from different Government departments of India during the past few months. The reports mostly deal with the sanitation of India (including Burma) during 1907, and show the mass which has to be done and the valiant way in which the strife to do it is carried on. We wish it were possible to put the results of this excellent work before our readers at a date somewhat nearer the time of its performance, but we cannot review the reports before we get them.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are among the principal amounts received at the Mansion House or notified directly to us as having been collected on behalf of the Metropolitan Hospital Sunday Fund up to Tuesday evening last:—

	£	s.	d.
William Herring, Esq.	1000	0	0
St. Michael's, Chester-square	743	0	0
St. Paul's Cathedral	239	0	0
Watts, Watts, and Co.	210	0	0
"Delta"	200	0	0
A. G. P.	200	0	0
St. James's, Piccadilly	200	0	0
Emmanuel, Wimbledon	141	0	0
Aldenham Church, Herts	121	0	0
Bromley Parish Church, with Chapel of Ease	120	0	0
Temple Church	120	0	0
St. Mary's, Stoke Newington	117	0	0
St. Mark's, Reigate	110	0	0
City Temple	107	0	0
Sir W. Vaughan Morgan, Bart.	100	0	0
Heath Harrison, Esq.	100	0	0
Alex. Miller, Esq.	100	0	0
F.G. Debenham, Esq.	100	0	0
W. D. Graham-Menzies, Esq.	100	0	0
Mr. Alderman Howlett	100	0	0
St. Paul's Presbyterian Church, Westbourne-grove	100	0	0
St. Andrew's Presbyterian Church, Hampstead	100	0	0
"Churchwoman"	100	0	0
Annunciation, Chislehurst	92	0	0
Greek Church, Bayswater	87	0	0
St. Augustine's, Highbury	86	0	0
Beckenham Parish Church	85	0	0
St. Ann's, Wandsworth	83	0	0
St. James's, Kidbrook	71	0	0
Holy Trinity, Eltham	68	0	0
St. Magnus the Martyr, London Bridge	67	0	0
St. George's, Perry-hill	64	0	0
St. John's, Putney	61	0	0
Christ Church, Newgate-street	61	0	0
Dulwich College Chapel	53	0	0
Messrs. Broad and Co.	52	10	0
Messrs. J. H. Vavasseur and Co.	52	10	0
St. Augustine's, South Kensington	51	0	0
A.B.C.	50	0	0
Mrs. C. E. Layton	50	0	0
"Anon."	50	0	0
"Anon."	50	0	0
Farm-street Church	50	0	0
Mrs. Jowers	50	0	0
Mrs. Kenneth Clark	50	0	0
E. P. Gooch, Esq.	50	0	0
Mrs. Gooch	50	0	0
Gray's Inn Chapel	50	0	0
Wellington Barracks Chapel	48	0	0
St. James's, West Hampstead	47	0	0
Christ Church, Lee	46	0	0
Old Malden Parish Church	45	0	0
St. Mary's, Shortlands	44	0	0
Central Hill Baptist Church, West Norwood	42	0	0
St. Alban's, Streatham Park	42	0	0
Orange-street Congregational Church	41	0	0
Hornchurch Parish Church	40	0	0
St. Paul's, Harringay	40	0	0
West Wickham Parish Church	38	0	0
Crouch Hill Presbyterian Church	37	0	0
St. Mary the Virgin, Hayes	37	0	0
St. John's, Redhill	36	0	0
St. Stephen's, Putney	36	0	0
Greenwich Parish Church	35	0	0
St. John's, Sidcup	35	0	0
St. Peter's, Walton-on-the Hill	35	0	0
St. Paul's, Forest Hill	34	0	0
St. Michael's, Betchworth	33	0	0
Monken Hadley Parish Church	32	0	0
Great Warley Parish Church	30	0	0
St. John's, Upper Holloway	30	0	0
St. Augustine's, Grove Park	29	0	0
Mitcham Parish Church	29	0	0
St. Philip's, Sydenham	28	0	0
St. Michael's, Stockwell	28	0	0
St. James's, Garlick Hill	28	0	0
All Saints', Friern Barnet	27	0	0
St. Gabriel's, Pimlico	27	0	0
St. Peter's, Clapham	27	0	0
Bromley, Kent, Wesleyan Church	26	0	0
Christ Church, Enfield	26	0	0
Miss H. C. Gabriel	25	0	0
Russell Walker, Esq.	25	0	0
Otto Beit, Esq.	25	0	0
Mrs. Harold Russell	25	0	0
St. Stephen's, Vincent-square	25	0	0
St. Mary Magdalen, Enfield	25	0	0
St. Anne's, Highgate	25	0	0
St. Mary, Primrose Hill	25	0	0
St. Andrew's, Totteridge	25	0	0
St. Peter's, Dulwich Common	24	0	0
St. James's, Lambeth	24	0	0
Epsom Parish Church	24	0	0
Merton Parish Church	24	0	0
St. Gabriel's, Willesden Green	22	0	0
Kentish Town Parish Church	22	0	0
Paddington Congregational Church	22	0	0
Keston Churches	22	0	0
St. Peter's, Fulham	22	0	0
Northwood Parish Church	22	0	0
Leyton Parish Church	21	0	0
St. Mary, Cuddington	21	0	0
St. John's, Plumstead	21	0	0
Sydenham Baptist Chapel	20	0	0
Mr. and Mrs. Septimus Vaughan Morgan	20	0	0
Miss L. M. Oliverson	20	0	0
Lady Northwick	20	0	0
Bernard Walah, Esq.	20	0	0
Lady Stewart	20	0	0
St. Peter's, Clerkenwell	20	0	0
Holy Trinity, Dartford	20	0	0

Looking Back.

FROM

THE LANCET, *SATURDAY*, June 25th, 1831.

PHYSIOLOGY OF PARASITIC ANIMALS.

THEIR FREQUENT OCCURRENCE IN MACKEREL.

To the Editor of THE LANCET.

SIR,—As the subject of parasitic animals is one of peculiar interest, and as any observations tending to throw light on their, as yet obscure, physiology, cannot fail of proving useful, I have troubled you with the few following remarks, thinking you might find them of sufficient interest for insertion in your Journal.

I would wish particularly to direct the attention of those who are engaged in the study of this subject, to the extraordinary manner in which the common mackerel is infested with parasitic animals. Having dissected several last summer, and during the present season, at first for a different purpose, I find them so generally infested, that it is rare to meet with one free from the disease. On examining one of these fish, several worms of the *filaria* description, varying in number from five to fifty, will be found within the abdominal cavity, wandering between the convolutions of the intestines and the other viscera, and confined entirely within the peritoneal sac, the surface of which seems well moistened with serous exudation.

A further examination will show, in a most distinct manner, the origin of these worms, and that they have not proceeded from the intestinal cavity, which indeed never contains any. The peritoneal surface bears no marks of attack from these animals, but on several parts of the membrane, or rather beneath it, and principally between and about the layers forming the mesentery and meso-rectum, may be seen corpuscles of an opaque, fuscous colour, of various sizes, mostly about that of a pin's head; these consist externally of a sac or cyst, the smallest containing only a white speck surrounded with mucus, but in the larger and more forward, a small worm may be distinguished in a coiled-up position. These are evidently the ova, from which the erratic worms in the abdomen are produced; nor can any instance of spontaneous generation be more apparent. The question then arises,

whether intestinal worms in general have not a similar origin; the supposition that their ova are taken in with the food being very unsatisfactory.

Rudolphi, in his great work on the Entozoa, mentions having observed in dissecting a dog a small body adhering to the villous coat of the intestines, in which he traced a resemblance to the head of a variety of tænia, two or three of which were in the alimentary canal, but I believe the intestines have not often been examined with this view.

With respect to the worms found in the mackerel, I may merely mention that their organisation is exceedingly simple; they are white and semi-transparent, having an opaque spot near the head; their length varies from one to three inches; they do not seem furnished with digestive, vascular, or generative organs, and, consequently, exhibit no sexual distinctions; they are very tenacious of life, continuing in active motion in water for a day or two after removal from the fish.

I will not trespass further than to observe that though, as I mentioned above, the prevalence of this disease in mackerel is very general, and in some very extensive, I have not witnessed any decided ill effects having arisen from the use of this fish as an article of food, but have reason to think some caution in this respect to be necessary. I have once, only, observed trout to be similarly affected.

I remain your obliged,

18, Salisbury-sq., June 9, 1831. H. PEACOCK, Surg.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Presidential Address.—Annual Dinner.

A MEETING of this society was held on June 18th, Professor RONALD ROSS, the President, being in the chair.

Professor ROSS, in the course of his presidential address, said that the failure of nations was often ascribed to many causes, but too seldom it was referred to one which might be a predominant cause—namely, endemic disease. Palæontology told them of whole races of animals extinguished and archæology of whole civilisations wiped out, but he maintained that the disease factor in such events had probably been more potent than hitherto had been admitted. After pleading for a fuller consideration of the scientific history of tropical medicine than was now the case, Professor Ross considered in detail the question of including in the general medical curriculum more instruction in parasitology and in medical entomology, and discussed the defects in sanitary practice, dealing especially with the housing of natives in tropical towns and the necessary sanitary organisation.

In the evening the first annual dinner of the society was held at the Trocadéro Restaurant, London, when the President occupied the chair. Dr. W. Carnegie Brown, who was responsible for the arrangements of the dinner, received many congratulations on the success of his efforts. Colonel Seely, M.P., in the course of an eloquent speech proposing "Success to the Society," described the results of the work of the society as amazing, and instanced as an example the reduction of the ravages of sleeping sickness to one-tenth of what they had been. Other speakers included Sir Alfred Jones, Sir Rubert Boyce, Sir Patrick Manson, Sir Archibald Geikie, Mr. Henry Morris, Count Mörner, and Mr. Ramsay Macdonald, M.P.

EPSOM COLLEGE.

AT the annual general meeting to be held at the office in Soho-square to-day (Friday), the following candidates for pensionerships and for foundation scholarships will be reported by the scrutineers, Dr. C. Drage, Dr. C. Godson, and Mr. W. A. Propert, to have obtained the largest number of votes, and be declared to have been duly elected:—

Pensionerships.

1. Jane Devlin	6896	3. Emily Barron	5234
2. Catharine Slesser	6288	4. Joan Mitchell	4567

Foundation Scholarships.

1. Thomas R. B. Corby ...	8864	5. Donald F. Christie	7091
2. Oswald H. V. Wreford ...	8050	6. Daryll C. Corry	6816
3. Laurence J. Hartnett ...	7437	7. Edward F. C. Weatherly	5897
4. Norman W. Fuller	7115		

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

Sanitary Circumstances and Enteric Fever Prevalence in the County Borough of Rotherham.—Dr. R. D. Sweeting gives a somewhat unfavourable report on the sanitary condition of this important Yorkshire town and shows that its public health administration leaves much to be desired. Rotherham is an industrial and mining town adjoining Sheffield, with a population which is now estimated at 64,000 and is contained in some 12,500 houses. It attained the dignity of a county borough in 1902 after inquiry into its sanitary circumstances had been made by the Local Government Board, and certain improvements had been outlined or promised by the local authority. Some important powers for this purpose were obtained by the Rotherham Corporation Act of 1904, which among other matters enabled the corporation to require conversion of the objectionable privies of the place into water-closets. Large sums have been expended for sewerage purposes in recent years, and arrangements have been made by which Rotherham has been able to draw on the Sheffield water-supply and so to abandon some unsatisfactory sources of water on which the town was formerly dependent. In future both Sheffield and Rotherham will share in the large new Derwent scheme of water-supply which is now in course of completion. The medical officer of health, who was formerly only engaged to give occasional services, has since 1906 been appointed to give his whole time to official work. A woman health visitor has been appointed and has done good work, the results of which can be clearly traced in the reduction of infantile mortality in the families visited. A satisfactory isolation hospital has been built during the last few years. The total indebtedness of the borough under the Public Health and local Acts is high and amounts to over £750,000. But, notwithstanding this expenditure, part of which has been for sanitary purposes, and the various improvements above referred to, the borough shows evidence of insufficient sanitary administration and supervision in many directions, and remains characterised by excessive mortality from enteric fever when compared with other large English towns. This has averaged 0·19 per 1000 for the 16 years 1892 to 1907, and only in one of these years has been below 0·10 per 1000. The diarrhœa death-rate has been likewise excessive throughout this period. The report gives an account of inquiries into the endemic enteric fever of the borough, and Dr. Sweeting points to the conditions which appear specially to have favoured its local prevalence. There is much insanitary house property, consisting largely of back-to-back houses; the paving of yards is much neglected, and this is of special importance in view of the large collections of dry ashpit or privy refuse which accumulate in the neighbourhood of the dwellings, and of the frequent practice of keeping pigs and fowls in the yards in question. Scavenging is insufficiently supervised and needs to be more thoroughly and regularly carried out. Common lodging-houses are in some cases in an unsatisfactory condition and by-laws in respect to them are not enforced. Certain streets are "unmade" and in a constantly filthy condition. Dr. Sweeting emphasises the recurrence of enteric fever in these circumstances: (*a*) in the same streets in successive years; (*b*) in the same streets in the same year; and (*c*) in the same houses in successive years. He found no evidence of the operation of "carriers" in connexion with the typhoid prevalence, and very few instances of multiple cases in families which could be explained on a tnesis of personal infection. An unusual proportion of recently notified cases has consisted of children of school age, and in regard to some of these the diagnosis appeared open to doubt. Medical practitioners are invited to submit blood serum of their patients for examination by the medical officer of health, but few avail themselves of this offer. Dr. Sweeting evidently considers that much of the inefficiency which exists in the everyday working of the sanitary administration in Rotherham is to be attributed to the unsatisfactory system by which the inspectors in the public health department are permitted to carry out their duties practically independently of any directions by the medical officers of health, and his report concludes with a series of recommendations on this and other matters.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

Borough of Cambridge.—The health and sanitary condition of Cambridge is matter of concern to a large section of the educated classes of this country. A large number of undergraduates are in residence there for more than half of each year, and it is important that they should neither introduce disease into Cambridge nor themselves contract disease while in residence there. Fortunately, the students are all at an age-period which death touches but lightly and disease deals tenderly with, so that from a statistical standpoint the presence of these undergraduates is probably an advantage to the town. Apart from an epidemic disease such, for example, as might theoretically be caused by a contaminated water- or milk-supply, the death-rate of these students is not likely to be at all a prominent factor in bringing about a high mortality in the population as a whole. Dr. Andrew J. Laird estimates the population of the borough during 1908 at 40,118, and the birth-rate during the same period was 19·7 per 1000, the lowest for the last 33 years. The uncorrected death-rate was 16·3 and the corrected death-rate 14·9, while the infantile mortality amounted to 135 per 1000 births, as against a mean rate for the previous ten years of 122, the infantile mortality amongst the legitimate children having been 129 and that of the illegitimate children 257. The Notification of Births Act has not yet been adopted in the borough in consequence of an undertaking having been given by the local medical practitioners and midwives to the effect that they would do "everything in their power to procure the early notification of births in all cases which they think need the attention of the public health authority." Consequently trial of voluntary notification has been given for six months, and the result of the experiment is now, the medical officer of health reports, receiving the serious consideration of the council. The Cambridge health visitors have collected some valuable material with regard to the feeding of infants in relation to epidemic diarrhœa, and this may be summarised as follows. Among 1219 entirely breast-fed children there were two deaths, or 0·16 per cent.; among 361 partly breast-fed there were 13 deaths, or 3·6 per cent.; and among 250 non-breast-fed there were 22 deaths, or 8·8 per cent. The influence of the health visitors in the direction of inducing proper recovery of the mothers after confinement is well brought out by the following figures. In 1906 and 1907 only 32·3 and 32·5 per cent. of the mothers stayed in bed over ten days after confinement, but in 1908, owing to the efforts of the health visitors, 97·1 per cent. stayed in bed beyond this period. A steady decline in the death-rate from pulmonary tuberculosis in Cambridge has been taking place for many years, and it has now been decided to make an attempt to hasten that decline by admitting some advanced cases into the isolation hospital. As bearing upon the question of school-induced diphtheria, it may be noted that 41 cases in 25 households "were possibly the direct result of school assemblage." Enteric fever has shown a marked decrease during the last six years, and the six cases notified in 1908 were all probably imported. Dr. Laird makes but few comments upon the water-supply of Cambridge. He tells us, however, that the town council has taken steps to have daily bacteriological examinations of the water made, and has approached the water company in connexion with the valuable and eminently cautious report made by Dr. Theodore Thomson and Mr. P. W. Crosthwaite to the Local Government Board. The town council is, we are told, now "anxiously awaiting the decision of the water company as to what steps they intend taking in order to eliminate the possibilities of contamination to which the Board's report refers." No reference is made in the interesting report before us to the sanitary condition of any of the Colleges of this great University, and we are wondering whether this absence of comment is to be taken as a tribute to the excellency of the supervision exercised by all the College authorities.

County Borough of Hanley.—Successful attempts have been made in this borough to diminish the amount of black smoke, several of the large manufacturers having taken active steps to minimise the nuisance, with the result that incidentally they have found a saving in expenditure on fuel. The firemen have themselves taken great interest in the methods introduced, which have caused no inconvenience to the manufacturers. There were 165 cases of diphtheria notified during 1908 with only five deaths, and amongst the preventive measures adopted was the use of antitoxin as a prophylactic, the medical practitioner being paid—apparently by the corporation—2*s.* 6*d.* for the first person injected and 1*s.* for every other person in the house. This is an interesting development of municipal action and is somewhat on the lines of the proposal sometimes made that every general practitioner should in effect act as a public vaccinator.

Borough of Bedford.—The danger which sometimes attaches to the consumption of pork pies was illustrated in Bedford in the summer of 1908, when an outbreak of "ptomaine poisoning" occurred in the following circumstances. On Friday, July 10th, Mr. A., his wife, and three children had a pork pie for tea and on the following Sunday they were attacked by pain, diarrhœa, and great prostration. On the same day Mr. B. procured a pork pie from the same shop as that from which Mr. A. purchased his, and the same evening six out of seven persons who had partaken of the pie were affected, while the seventh, who had eaten some of the meat but none of the crust, escaped. A dog which had eaten some of the pie was also ill. On the evening of Friday, July 10th, Mr. G. purchased a pork pie at another shop under the same management, a portion being eaten by various persons that evening and the remainder on Saturday and Sunday. Three of these became ill on Sunday, two of them severely. On July 11th (Saturday) Mr. D. purchased a pork pie from the same shop as Mr. G., and this pie was not eaten until July 14th. Three persons who consumed the main portion of the pie were all ill, while two others who only ate a small portion escaped almost entirely. It will be noticed that the latent period was materially longer in the case of Mr. A. than in the remaining cases. Curiously enough, other cases due to sausages stated to have been obtained from a wholly different source occurred in one family during the same week, five persons being attacked. Unfortunately, the precise source of the mischief was not determined. On Saturday, Oct. 3rd, one and a half pounds of pressed tongue and pig's cheek purchased in the town were consumed by a family of five persons and the meat was eaten for dinner on the same day. On Sunday the father, one daughter, and one son were all taken ill, the younger son suffered but slightly, and the mother escaped entirely. Part of the tongue did not taste good and was given to a dog which was also taken ill. It is of interest to observe that although dogs are accustomed to eat offal of various descriptions two of them in the cases recorded above manifested symptoms of poisoning. Dr. F. B. Willmer Phillips, the medical officer of health, has been endeavouring to abolish the fair which is held in Bedford twice weekly. He points out that owing to the large number of children in the town for educational purposes all avoidable risks of infection should be done away with.

City of Coventry.—The death-rate from pulmonary tuberculosis in this city, with its population of 91,000, has been steadily declining since 1875, and the corporation has recently been considering the question of utilising the existing small-pox hospital as a sanatorium. But the medical officer of health, Dr. E. H. Snell, and the engineer, after carefully examining the institution, came to the conclusion that it was not well adapted for a sanatorium whether as regards its site, its soil, its arrangement, or its relation to the city, and subsequently the sanitary committee abandoned the idea of making use of the institution. On the other hand, it has determined to rent six beds at the Winsley Sanatorium, near Bath, at the rate of £100 per annum per bed, and the medical practitioners in the city have been notified of the arrangement. These municipal beds are intended for early and possibly curable cases of pulmonary or laryngeal tuberculosis, and they are not to be occupied either by those who can afford to go to a private sanatorium or who are technically paupers. Each applicant for a bed will have to be provided with a certificate as to fitness from the medical attendant, and the medical officer of health will act as the medical referee. We are glad to see this arrangement, since there is no doubt that the medical practitioner will sometimes be glad to be spared the sole onus of refusing admission to a patient in whom he is interested. Presumably there is to be no fixed limit to the period of stay in this sanatorium. Certainly all experience points to the fact that three months is usually too short, and it is far better to leave the matter in the hands of the medical superintendent of the sanatorium. We trust that the after-result statistics will be so kept and recorded that the people of Coventry

may be able to appreciate the precise value of the provision made. We believe that the city of Bath, which also contributes to this institution, has arranged to have the figures for each year kept separately so as not to present the after-results in a too optimistic fashion. Dr. Snell has been appointed school medical officer for Coventry, the actual inspection being carried out by an assistant medical officer whose work is facilitated by a nurse. It seems that in the case of Coventry the children are not all examined at the schools at which they attend, but that certain schools have been fixed upon as "centres." With reference to the important subject of treatment, Dr. Snell points out that the agencies available consist of the usual complement of private medical and dental practitioners, while to meet the needs of those who are unable to pay full medical fees there are many medical men whose services are available through the channel of clubs and friendly societies. For those who are too poor to pay anything there are four district medical officers, the Poor-law infirmary, and the Coventry and Warwickshire Hospital. But in spite of these several provisions there are, Dr. Snell adds, certain defects for the treatment of which there are not as yet adequate arrangements. He instances defective vision, defective teeth, and ringworm. As regards the first, he reports that the relatively small number whose defects have been attended to have found their way to the eye department of the local hospital, which institution has represented to the education authority the manner in which the resources of the eye department are being taxed by the attendance of school children requiring prescriptions for spectacles. As to dental treatment, the dental department of the same institution finds that the extractions required are so numerous that general conservative treatment would be impracticable with the present resources. Finally, with respect to ringworm, Dr. Snell thinks that if the x ray treatment is undertaken it should be placed in the hands of some medical practitioner who should use drugs or x rays at his discretion, according to the severity of the case.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8647 births and 3880 deaths were registered during the week ending June 19th. The annual rate of mortality in these towns, which had been equal to 12·3 and 12·6 per 1000 in the two preceding weeks, declined again to 12·3 in the week under notice. During the first eleven weeks of the current quarter the death-rate in these towns averaged 14·4 per 1000; the mean rate in London during the same period did not exceed 13·8. The lowest recorded annual death-rates in these towns last week were 4·5 in East Ham, 5·6 in Leyton, 6·0 in Hornsey, and 6·4 in King's Norton, all being suburban districts; the rates in the other towns ranged upwards, however, to 17·9 in Salford, 18·9 in Norwich, 19·2 in Rochdale, and 25·4 in Great Yarmouth. In London the recorded death-rate last week did not exceed 11·4, a lower rate than in any previous week of this year. The 3880 deaths from all causes in the 76 towns last week showed a decline of 83 from the number in the previous week, and included 364 which were referred to the principal epidemic diseases, against 362 and 393 in the two preceding weeks; of these 364 deaths, 173 resulted from measles, 57 from whooping-cough, 55 from scarlet fever, 35 from diarrhœa, 28 from diphtheria, and 16 from "fever" (principally enteric), but not one from small-pox. The 364 deaths from these epidemic diseases last week were equal to an annual rate of 1·2 per 1000, against 1·1 and 1·2 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Willesden, Birkenhead, South Shields, Hornsey, or in ten other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·8 in Liverpool, 4·5 in Salford, 5·0 in Wolverhampton, and 8·4 in Norwich. The fatal cases of measles in the 76 towns, which had been 140 and 186 in the two preceding weeks, declined again last week to 173; the fatal cases of this disease caused annual death-rates last week ranging upwards to 2·2 in Salford and in West Bromwich, 5·0 in Wolverhampton, and 8·4 in Norwich. The 57 deaths from whooping-cough exceeded the number in the previous week by two, and included 24 in London and its suburban districts, five in Manchester and Salford and three in Cardiff. The 55 fatal cases of scarlet fever showed a further increase upont recent weekly numbers, and exceeded the number returned in any previous week of this year; the highest rates from this disease last week were 1·1 in Blackburn, 1·3 in Merthyr Tydfil, 1·5 in Wallasey, and 2·2 in Warrington. The 35 deaths attributed to diarrhœa showed a marked decline from the numbers in recent weeks, as did the 28 deaths from diphtheria; the fatal cases of the latter disease included six in Manchester and Salford, and five in Liverpool. The 16 deaths referred to "fever" were again considerably below the corrected average. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 2228 and 2263 at the end of the two preceding weeks, had further increased to 2445 on Saturday last; 468 new cases of this disease were admitted to these hospitals during last week, against 275 and 305 in the two preceding weeks. The registered deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 225, 172, and 152 in the three previous weeks, further declined to 135 in the week under notice, and were 18 below the corrected average number in the corresponding week of the five years 1904–08. The deaths in London directly referred to influenza declined last week to six, against ten and 13 in the two previous weeks. The causes of 35, or 0·9 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. The causes of all the deaths registered during the week were again duly certified in Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 50 other smaller towns; the 35 uncertified causes of death in the 76 towns included four in Liverpool and in Birmingham, and three in Gateshead, in Nottingham, and in Reading.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 1010 births and 554 deaths were registered during the week ending June 19th. The annual rate of mortality in these towns, which had steadily declined in the four preceding weeks from 17·5 to 14·5 per 1000, rose again to 15·5 in the week under notice. During the first eleven weeks of the current quarter the death-rate in these Scotch towns averaged 16·5 per 1000, while in the 76 large English towns the mean death-rate during the same period did not exceed 14·4. The death-rates last week in these Scotch towns ranged from 8·5 and 10·1 in Perth and Greenock to 16·9 in Glasgow and 18·7 in Paisley. The 554 deaths from all causes in the eight towns showed an increase of 36 on the low number returned in the previous week, and included 56 which were referred to the principal epidemic diseases, against numbers declining from 76 to 55 in the four preceding weeks. These 56 deaths were equal to an annual rate of 1·6 per 1000, against rates declining from 2·1 to 1·5 in the four previous weeks; the mean death-rate last week from these principal epidemic diseases in the 76 large English towns did not exceed 1·2 per 1000. Of the 56 deaths from these epidemic diseases last week in the Scotch towns, 18 resulted from whooping-cough, 13 from measles, 13 from diarrhœa, and four each from scarlet fever, diphtheria, and "fever," but not one from small-pox. The fatal cases of whooping-cough in the eight towns, which had declined from 40 to 22 in the four preceding weeks, further declined last week to 18, of which 11 occurred in Glasgow and five in Edinburgh. The 13 deaths from measles, however, showed a marked excess upon recent weekly numbers, and included 10 in Paisley. The 13 deaths attributed to diarrhœa were within two of the number in the previous week; seven occurred in Glasgow and two both in Aberdeen and Paisley. Three of the four deaths from scarlet fever were returned in Glasgow, as were all the four fatal cases of diphtheria. The four deaths referred to "fever," of which three were certified as cerebro-spinal meningitis and one as enteric, were also all recorded in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had steadily declined in the four preceding weeks from 109 to 80, further declined last week to 73, and corresponded with the number in the corresponding week of last year. Of the deaths in the eight towns last week, 16 resulted from violence, including seven in Glasgow, six in Edinburgh,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1909.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1909.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fever.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	
LONDON	4,833,938	—	1362	490	1	60	2	21	309	4	2249	6·1	—	241	33	53	138	—	8	—	45	518	1·4	4783	12·9	94
West Districts.																										
Paddington	151,955	—	69	8	—	6	—	—	6	—	89	7·6	—	5	1	—	6	—	—	—	1	13	1·1	139	11·9	75
Kensington	183,683	—	24	10	1	1	—	1	8	—	44	3·1	—	3	—	—	4	—	—	—	2	9	0·6	162	11·5	105
Hammersmith	125,704	—	43	14	—	2	—	2	6	—	67	6·9	—	19	3	2	7	—	—	—	2	33	3·4	135	14·0	142
Fulham	176,406	—	30	19	—	4	—	—	8	—	61	4·5	—	3	2	4	5	—	1	—	3	18	1·3	131	9·7	60
Chelsea	75,249	—	26	14	—	3	—	—	6	—	49	8·5	—	—	1	1	—	—	—	—	—	2	0·3	75	13·0	100
City of Westminster	168,883	—	60	11	—	—	—	—	6	—	77	5·9	—	3	4	3	—	—	—	—	—	10	0·8	185	14·3	106
North Districts.																										
St. Marylebone	126,027	—	32	7	—	1	—	1	6	—	47	4·9	—	7	—	1	—	—	—	—	3	12	1·2	130	13·4	72
Hampstead	94,185	—	15	1	—	2	—	1	4	1	24	3·3	—	5	1	—	2	—	—	—	—	8	1·1	63	8·7	69
St. Pancras	237,422	—	63	15	—	2	—	1	14	—	95	5·2	—	6	—	4	3	—	—	—	—	13	0·7	265	14·6	90
Islington	351,202	—	105	34	—	8	—	2	13	—	162	6·0	—	22	1	3	7	—	2	—	5	40	1·5	345	12·8	106
Stoke Newington	54,423	—	15	4	—	2	—	—	5	—	26	6·2	—	1	—	—	3	—	—	—	—	4	1·0	40	9·6	55
Hackney	237,601	—	57	17	—	2	—	1	28	—	105	5·8	—	2	1	1	7	—	—	—	3	14	0·8	201	11·0	80
Central Districts.																										
Holborn	53,802	—	11	6	—	1	1	—	4	—	23	5·6	—	2	—	—	—	—	—	—	—	2	0·5	51	12·4	70
Finsbury	95,289	—	20	15	—	2	—	—	9	—	46	6·3	—	21	—	1	5	—	—	—	3	30	4·1	154	21·1	134
City of London	18,193	—	5	2	—	—	—	—	—	—	7	5·0	—	1	—	—	—	—	—	—	—	1	0·7	29	20·8	176
East Districts.																										
Shoreditch	114,302	—	20	18	—	3	—	2	12	—	55	6·2	—	24	1	3	6	—	—	—	2	36	4·1	169	19·2	132
Bethnal Green	131,316	—	49	22	—	5	—	1	8	—	85	8·4	—	3	1	2	5	—	1	—	2	14	1·4	147	14·6	108
Stepney	312,525	—	86	37	—	—	—	—	33	—	156	6·5	—	22	2	4	2	—	—	—	1	31	1·3	316	13·2	80
Poplar	171,965	—	54	17	—	2	—	1	14	—	88	6·7	—	25	2	1	13	—	2	—	3	46	3·5	234	17·7	148
South Districts.																										
Southwark	211,125	—	42	21	—	—	1	1	9	—	74	4·6	—	11	2	2	12	—	—	—	—	27	1·7	239	14·8	106
Bermondsey	127,569	—	29	15	—	—	—	1	11	—	56	5·7	—	9	—	1	7	—	—	—	2	19	1·9	165	16·9	110
Lambeth	304,188	—	79	28	—	2	—	—	20	2	131	5·3	—	11	3	7	15	—	1	—	1	38	1·5	319	12·8	104
Battersea	186,036	—	52	24	—	—	—	—	12	1	88	6·2	—	9	1	3	5	—	—	—	1	19	1·3	176	12·3	89
Wandsworth	297,646	—	70	29	—	3	—	2	17	1	122	5·3	—	5	—	3	6	—	1	—	—	18	0·8	234	10·2	55
Camberwell	283,022	—	81	27	—	5	1	1	14	—	128	5·9	—	10	—	—	12	—	—	—	3	25	1·2	288	12·3	110
Deptford	118,583	—	30	13	1	1	—	—	13	—	60	6·6	—	4	2	1	2	—	—	—	—	4	1·3	109	12·0	83
Greenwich	111,014	—	44	20	—	2	—	1	9	—	76	8·9	—	1	2	—	1	—	—	—	1	7	0·5	83	9·7	88
Lewisham	160,749	—	62	25	—	—	—	—	7	—	94	7·6	—	1	3	2	—	—	—	—	2	13	0·6	116	9·4	63
Woolwich...	133,374	—	89	17	—	1	—	—	7	—	114	11·1	—	6	—	2	—	—	—	—	—	13	1·3	114	11·1	49
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

and two in Aberdeen. The causes of 19, or 3·2 per cent., of the deaths in the eight towns last week were unspecified or uncertified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 18·2 and 18·7 per 1000 in the two preceding weeks, declined to 15·7 in the week ending June 19th, and was considerably lower than in any previous week of this year. During the first 11 weeks of the current quarter the death-rate in the city averaged, however, 21·2 per 1000, whereas the mean rate during the same period did not exceed 13·8 in London and 16·3 in Edinburgh. The 120 deaths of Dublin residents from all causes during last week showed a decline of 23 from the number in the previous week, and included ten which were referred to the principal epidemic diseases, against 11 and nine in the two preceding weeks. These ten deaths were equal to an annual rate of 1·3 per 1000, the death-rate from these epidemic diseases in the same week being but 1·0 in London and in Edinburgh. Of the ten deaths from these epidemic diseases in Dublin last week, three resulted from measles, three from whooping-cough, three from diarrhœa, and one from "fever," but not one either from scarlet fever, diphtheria, or small-pox. The fatal cases of whooping-cough showed a further decline, while those of measles and diarrhœa were more numerous than in recent weeks. The 120 deaths included 20 of infants under one year of age and 32 of persons aged upwards of 60 years; both these number showed a decline. One inquest case, but no death from violence, was registered during the week; 43, or 35·8 per cent., of the deaths occurred in public institutions. The causes of all but one of the deaths in the city last week were duly certified by a registered medical practitioner or by a coroner; in London the causes of all but one of the 1060 deaths last week were also duly certified, whereas in Edinburgh the proportion of uncertified causes of death was equal to 5·4 per cent.

VITAL STATISTICS OF LONDON DURING MAY, 1909.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·1 per 1000 of the population, estimated at 4,833,938 persons in the middle of the year; in the three preceding months the rates were 6·4, 5·9, and 5·4 per 1000 respectively. The lowest rates last month were recorded in Kensington, Fulham, St. Marylebone, Hampstead, and Southwark; and the highest rates in Paddington, Chelsea, Bethnal Green, Greenwich, Lewisham, and Woolwich. The prevalence of scarlet fever showed a marked increase last month; among the various metropolitan boroughs this disease was proportionally most prevalent in Paddington, Hammersmith, Chelsea, the City of Westminster, Bethnal Green, Greenwich, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 2207 scarlet fever patients at the end of last month, against 2766, 2412, and 2143 at the end of the three preceding months; the weekly admissions averaged 318, against 283, 278, and 262 in the three preceding months. Diphtheria was somewhat less prevalent than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded in Chelsea, Finsbury, Shoreditch, Bethnal Green, Greenwich, and Lewisham. There were 920 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 1152, 1103, and 1012 at the end of the three preceding months; the weekly admissions averaged 108, against 133, 121, and 109 in the three preceding months. The prevalence of enteric fever again showed a slight increase over that recorded in the preceding month; this disease was proportionally most prevalent in Paddington, Fulham, Chelsea, Islington, Shoreditch, and Bethnal Green. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 124, 87, and 57 at the end of the three preceding months, had further declined to 49 at the end of last month; the weekly admissions averaged eight, against nine and seven in the two preceding months. Erysipelas was proportionally most prevalent in Hackney, Finsbury, Shoreditch, Stepney, Bermondsey, and Deptford. The 21 cases of puerperal fever notified during the month included two each in Hammersmith, Islington, Shoreditch, Wandsworth, and Deptford. Of the four cases notified as cerebro-spinal meningitis, two belonged to Lambeth, and one each to Hampstead and Wandsworth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had resided. During the four weeks ending May 29th the deaths of 4793 persons belonging to London were registered, equal to an annual rate of 12·9 per 1000; in the three preceding months the rates were 18·5, 21·4, and 15·0 per 1000. The lowest death-rates last month were 8·7 in Hampstead, 9·4 in Lewisham, 9·6 in Stoke Newington, 9·7 in Fulham and in Greenwich, and 10·2 in Wandsworth; the highest rates were 16·9 in Bermondsey, 17·7 in Poplar, 19·2 in Shoreditch, 20·8 in the City of London, and 21·1 in Finsbury. The 4793 deaths from all causes included 518 which were referred to the principal infectious diseases; of these, 241 resulted from measles, 33 from scarlet fever, 53 from diphtheria, 138 from whooping-cough, eight from enteric fever, and 45 from diarrhœa, but not any from small-pox, from typhus fever, or from ill-defined pyrexia The lowest death-rates from these diseases last month were recorded in Kensington, Chelsea, St. Pancras, Holborn, the City of London, Greenwich, and Lewisham; and the highest rates in Hammersmith, Finsbury, Shoreditch, Poplar, Southwark, and Bermondsey. The 241 fatal cases of measles were 29 in excess of the corrected average number for the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded in Hammersmith, Finsbury, Shoreditch, Stepney, Poplar, and Bermondsey. The 33 deaths from scarlet fever showed a slight decline from the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, the City of Westminster, Poplar, Deptford, Greenwich, and Woolwich. The 53 fatal cases of diphtheria were 19 above the corrected average number; the highest death-rates from this disease were recorded in Hammersmith, Fulham, the City of Westminster, Shoreditch, Lambeth, Battersea, and Lewisham. The 138 deaths from whooping-cough were 25 fewer than the corrected average number for the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded in Hammersmith, Finsbury, Shoreditch, Poplar, Southwark, and Bermondsey. The eight fatal cases of enteric fever showed a marked decrease from the corrected average number; these eight deaths included two in Islington, two in Poplar, and one each in Fulham, Bethnal Green, Lambeth, and Wandsworth. The 45 deaths from diarrhœa were 14 below the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, St. Marylebone, Finsbury, Shoreditch, Poplar, and Deptford. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases corresponded with the average mortality in the same period of the five preceding years.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 94 per 1000. The lowest rates of infant mortality were recorded in Fulham, Hampstead, Stoke Newington, Holborn, Wandsworth, Lewisham, and Woolwich; and the highest rates in Hammersmith, Finsbury, the City of London, Shoreditch, and Poplar.

DONATIONS AND BEQUESTS.—By the will of the late Dr. John Hall the Research Defence Society will receive £1000, and each of the following institutions a sum of about £3000—viz., Epsom College, the British Medical Benevolent Fund, the Royal London Ophthalmic Hospital, and the National Hospital for the Paralysed and Epileptic. A sum of about £35,000 is also left to the University of Glasgow as an endowment for the foundation of tutorial fellowships in connexion with the study of surgery, medicine, and midwifery, to be called "Hall Tutorial Fellowships."

* Including membranous croup.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: M. J. Laffan, to the *Implacable;* F. E. Bolton, to Chatham Hospital; and J. Glaister, lent, the *Circe*, for manœuvres.

ROYAL ARMY MEDICAL CORPS.

Captain T. J. Potter, from Belfast, has been appointed for duty in the London District. Major A. G. Thompson has been appointed to the charge of the Brigade Laboratory at Ferozepore. Captain A. H. Safford has been appointed to the charge of the Brigade Laboratory at Fyzabad. Colonel L. E. Anderson, principal medical officer, Fyzabad Brigade, will officiate as principal medical officer of the 8th (Lucknow) Division during the absence on leave of Surgeon-General P. M. Ellis.

Supplementary List.—Robert Magill to be Lieutenant (on probation) (dated June 7th, 1909).

INDIAN MEDICAL SERVICE.

The King has approved of the following promotion in the Indian Medical Service:—To be Colonel: Lieutenant-Colonel Robert Neil Campbell (dated April 2nd, 1909).

The King has also approved of the retirement of Lieutenant-Colonel William St. John Richardson (dated April 22nd, 1909).

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st Highland Field Ambulance: Captain John W. Milne resigns his commission (dated April 30th, 1909).

1st Home Counties Field Ambulance: Sidney Wood Milner to be Lieutenant (dated March 29th, 1909).

Sanitary Service: Captain William Archibald resigns his commission (dated Feb. 28th, 1909).

Lowland Mounted Brigade Field Ambulance: Lieutenant Robert Buchanan Carslaw, Transport Officer, from the Scottish Command, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

3rd Lowland Field Ambulance: The undermentioned officers to be Majors: Captain Alexander M. McIntosh (dated April 1st, 1909). Lieutenant David J. Graham, from the Attached to Units other than Medical Units List, to be Lieutenant (dated July 3rd, 1908).

4th Southern General Hospital: The undermentioned are appointed officers whose services will be available on mobilisation (dated Sept. 29th, 1908):—To be Lieutenant-Colonels: Henry Davy, Edward James Domville, Edward Lawrence Fox, and James Elliot Square. To be Majors: John Mortimer, Arthur Charles Roper, Arthur Nathaniel Davis, Walter Ley Woolcombe, Robert Leonard Rutherford, Reginald Horace Lucy, William Cheyne Wilson, and Russell Coombe. To be Captains: John Wallis Gill, Charles Edward Bean, James Henry Dawe, George Frederick Aldous, Reginald Vaughan Solly, Henry Andrew, Ernest George Symes Saunders, William Crosbie Hamilton, Walter Ley Pethybridge, Gilbert James Arnold, George Calrow Sandford, Thomas Horton, Colin Dunrod Lindsey, Brennan Dyball, Charles Llewellyn Lander, George Augustus Roberts, Arthur Edmund Carver, and Ernest George Smith.

For attachment to Units other than Medical Units.—Surgeon-Captain John Graham Martin, from the 2nd Volunteer Battalion, The King's (Liverpool Regiment), to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Surgeon-Captain William Watkin Jones, from the 3rd Volunteer Battalion, The Welsh Regiment, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908). Major David Smart, from the 1st West Lancashire Field Ambulance, to be Major (dated May 8th, 1909). Surgeon-Captain William Buchan Armstrong, from the 9th (The Dumbartonshire) Battalion, Princess Louise's (Argyll and Sutherland Highlanders), to be Captain, with precedence as from July 11th, 1903 (dated May 20th, 1909). Arthur Edward Horsfall, late Second Lieutenant, 7th Battalion, The Duke of Wellington's (West Riding Regiment), to be Lieutenant (dated Feb. 13th, 1909). Edward Lucius Day Dewdney to be Lieutenant (dated March 17th, 1909). Surgeon-Captain Alexander Paul Swanson, from the 5th (Flintshire) Battalion, The Royal Welsh Fusiliers, to be Captain, with seniority as from May 23rd, 1900 (dated April 27th, 1909).

Correspondence.

"Audi alteram partem."

MALARIA IN INDIA: WHAT CAN THE STATE DO TO PREVENT IT?

To the Editor of THE LANCET.

SIR,—In his letter published in THE LANCET of April 10th Professor Ronald Ross criticises a paper read by one of us at the Bombay Medical Congress last February. We think that some of his remarks may cause those who have not read the original paper and the discussion thereon to believe that we are attempting to obstruct the progress of anti-malarial work in this country, and since such a misinterpretation of our attitude would be detrimental to the interests of that work we beg that you will permit us to lay before your readers a complete, but necessarily much condensed, statement of the most elementary and essential features of the Indian problem. The standpoint from which the subject of the prevention of malaria in India is regarded by Professor Ross and some other critics in England differs entirely from the point of view from which it has to be approached by Indian workers who are aware of the nature and magnitude of the task to be dealt with, and we believe that if by this communication we are able to induce even a few people to survey the subject from the outlook of local knowledge and experience we shall have contributed to the discussion in a more useful manner than if we had undertaken the trivial task of replying in detail to each of the criticisms brought forward by Professor Ross. It is exceedingly easy to enumerate the different measures that research and experiment have proved to be of value in the prevention of malaria. It is exceedingly difficult when we come to actual practice to suggest a rational scheme of anti-malarial sanitation suitable for India.

In the first place we think we are justified in saying that very few realise the magnitude of the task of controlling malaria in India. It is a task vastly greater than any similar one yet attempted or likely in the immediate future to be attempted in any part of the world. As regards British territory alone, the problem relates to an area greater than Germany, France, Spain, Norway, Sweden, England, and Italy together, and to a population which, excluding Russia and Austria-Hungary, nearly equals that of the whole of Europe. A single malarious town in the Punjab (Delhi) has a population more than five times that of Panama, 30 times that of Ismailia, and 50 times that of Klang and Port Swettenham. But Delhi would form but an infinitesimal part of the Indian problem. Again, more than 262,000,000 out of the 294,000,000 inhabitants of India live in villages, of which by far the greater number contain less than 500 inhabitants. Thus it is obvious that any scheme for the mitigation of malaria in India which fails to recognise that the problem is largely one of its mitigation in small villages must be futile. Operations in connexion with towns and municipalities represent at most only a very minor portion of the task.

In a country like India financial considerations absolutely forbid the employment of operations involving lavish expenditure. It is useless to cite the operations at Panama as an example to be followed in this country, and no one would do so who realised, for example, that to deal with malaria among the small population of Panama required an annual expenditure greater than the total yearly income of the 138 largest towns in the Punjab. In Panama the vast resources of a rich nation were concentrated for a definite and important object on a small area. What we have to do in India is to find out the method which can be applied so as to confer the greatest benefit upon the greatest number. The recommendation that we should utilise simultaneously *all* methods of anti-malarial prophylaxis, though apparently unanswerable, is in reality begging the question; it assumes that, as in the case of Panama, we are in the position to afford complete operations—that our task is a limited one well within our means. Only complete ignorance of the conditions could lead one to regard the Indian problem as being capable of such an easy solution. On the most hopeful view it can be possible for the State

only very slowly to improve matters. It is doubtful if more than a very few yet realise what they mean when they speak lightly of reducing (or abolishing) malaria in India. We are in the position of a man with 6*d*. who has to choose between a pair of boots and a loaf. He has to put aside the thought of the boots and maintain his life for the present with the loaf. We have dealt with this point at some length because we think it very important that the issue should be clearly realised.

This brings us to a consideration of what the State can be expected to do. Should it concentrate its energies upon some examples of anti-larval operations with a view to show that it is possible to reduce malaria—in the hope that measures found effective in these instances will eventually be applied generally throughout the country? Should it restrict itself to the mitigation of the disease in the large cities, or in the smaller towns and municipalities, or only in cantonments, or ought it seriously to attempt to reduce mortality in the villages, which we have seen are the localities in which the vast majority of the population of India live? The answer to these questions is of the first importance. Clearly demonstrations of success in anti-larval operations cease to be of value when their cost is such as to prohibit their general employment in India.

When mosquito destruction was first advocated as a means of getting rid of malaria it was thought that in nearly all malarious places the task would be exceedingly easy and very cheap. It was obvious that if it could be shown that anopheles mosquitoes and malaria can be reduced by the efforts of a few labourers banded together to form a body styled a "mosquito brigade" this would be the only right method of reducing the disease; it would be a method capable of adoption in every malarious town and village in India. It is well known that in 1901 experiments with this method were begun by the Royal Society's Commissioners at Mian Mir. This place consists essentially of a group of villages very similar to those met with throughout the Punjab and in other parts of India, but it possesses advantages over other groups of villages in that it has a piped water-supply, a surface drainage system, and good roads. It is also an exceedingly dry place. For these and other reasons the Commissioners considered that if in any part of India mosquito destruction operations would be easy it would be here. Operations by such measures as can be accomplished by "mosquito brigades" were carried out with great thoroughness from 1901 to 1903, but they did not affect appreciably either the numbers of anopheles mosquitoes or the prevalence of malaria. In 1904 the military authorities decided to continue the experiments on a much larger scale; in addition to extending considerably the work done by mosquito brigades they carried out further engineering works of surface drainage and completely abolished irrigation in the cantonment. These later efforts, like the earlier ones, have not resulted in an appreciable diminution in the prevalence of anopheles or malaria in the cantonment, and in the autumn of 1908 it was visited by an epidemic of the disease probably more severe than any previously experienced.

It is true certain demonstrations outside India have been held to establish the value of anti-larval operations, but they fail to help in the present problem because: (*a*) the areas dealt with have been, comparatively speaking, very small; and (*b*) the cost, in some cases several pounds sterling per head of the population, has been very great. The following figures illustrate these two points:—

Place.	Population.	Cost per head.	Remarks.
Ismailia.	6000-7000	6·5 frs. initial; 2-3 frs. annual.	Exclusive of quinine.
Klang and Port Swettenham.	4000	£2 10s. initial.	Exclusive of quinine.
Panama.	40,000	£10 per head annually.	Inclusive medical and sanitary expenditure.

(*c*) In every instance quinine prophylaxis was very actively pushed and it is at least as likely that the reported reduction in malaria was due to this method as to the anti-mosquito operations. At Ismailia, for instance, in 1903 and 1904 the cost of the quinine used prophylactically was more than 2 francs per head of the population during each year. Italy produces the same effects with quinine alone and at less cost. (*d*) The only country where the conditions approximate to those of India is Italy; and in Italy anti-larval operations have been abandoned in favour of measures which experience has shown to be more effective.

We see, then, that anti-larval operations are costly and not easy of assured success. It may, in fact, be regarded as established that for Indian villages and for rural conditions generally anti-larval operations are not feasible. Even the small towns present much more serious problems than is usually supposed. The great majority are only large villages and it is very doubtful whether many of them could hope ever to control malaria by anti-larval operations or even expend a tithe of the amount required to produce any effects by operations of this kind. The majority can only imperfectly meet the expenditure on the simplest sanitary requirements.

Unless the State, then, is prepared to leave rural India altogether out of account and to risk what will be nothing more or less than an enormous experiment in regard to small towns it must turn its attention and exercise its chief expenditure in systematically endeavouring to extend the benefits of quinine. Among many other advantages this system is the only one which cannot possibly be shown to be valueless by future advances in knowledge; moremoreover, it is cheap, is understood by the people, and is so willingly accepted by them that even in the present state of education they are ready to pay for it; it is the method which after much trial and experiment has been adopted on a national scale for the prevention of malaria in Italy, and is the one which is regarded by Dr. Koch and other eminent German scientists as far preferable to any other: it has already been tried on a small scale with success in India, and only needs to be taken up seriously and enthusiastically to become a great power for the mitigation of malaria in this country. What is essential, however, is that attention should not be diverted from the manifest advantages of this method by the many recommendations which are constantly being received in India to the effect that the destruction of mosquitoes by drainage operations should be the chief feature of malarial prophylaxis. One can imagine, for example, how great would be the benefit to the people of Bengal if the money which it has been proposed to expend on the drainage schemes enumerated in the report of a recent drainage committee were spent upon the extension of quinine administration and the thorough organisation of a system for this purpose. On the most favourable view it is extremely doubtful whether any mitigation of malaria would result from the drainage schemes, but on any view it could not be doubted that great benefit would accrue from the expenditure of so much money on the organisation and carrying out of a proper system of quinine administration. At the present time quinine prophylaxis when employed in India is carried out in a slipshod and haphazard manner because it is felt that chief attention should be directed to anti-larval measures. One has only to read reports upon cantonments by medical officers in India to realise how the insistence upon anti-larval sanitation has delayed the use of more suitable methods.

One other feature in which the problem for India demands special consideration is that at present not only is our knowledge of the epidemiology of malaria in India very limited, but we scarcely know sufficient about the conditions under which malaria occurs to justify any Government in ruling large sums to be immediately and blindly expended upon anti-mosquito work. It is, in fact, not true to represent the case so that it appears that no further inquiry or research is necessary or that all the State has to do is to vote the money. We are aware that India as a whole is not intensely malarious; there are wide tracts of country where the disease, though present, is not markedly interfering with the prosperity and natural increase of the population. In such areas special action for the reduction of the prevalence of malaria is unnecessary—the disease is sufficiently dealt with by general arrangements such as are taken for the mitigation of other diseases. Secondly, there are areas where malaria is constantly present to a moderately intense degree; and thirdly, there are areas in which the disease can only be described as decimating the people and converting once populous and prosperous districts into scantily peopled and decayed ones.

It is upon such areas as the last—where malaria is present in intensified and epidemic form and is acting as a pestilence

—that attention should be first concentrated. Such epidemics have causes which can be traced, and even at present it is known that the factor of anopheles mosquitoes is only one of many that are concerned in bringing about the epidemic result. In the great industrial centres, for example, we have malarial epidemics whose immediate cause is the immigration, under special conditions, of non-immune people from healthy districts to foci of malaria started by this very process of immigration.[1] We need not here describe the events and conditions that are concerned in causing epidemics of malaria in such centres, nor need we mention other examples in which recent work has revealed what are the really important factors concerned. It suffices if we emphasise the fact that the prevalence of anopheles, though always important, is by no means in every case the most important factor to be considered.

It is not without due reason that Professor Celli lays such stress on legislative amendment of agrarian laws, and so on, that he emphasises the fact that in the Roman Campagna malaria is not a result of want of drainage, and that it is one of the diseases to be surveyed from the outlook which will give the widest possible standpoint if we ever hope to control it. No cut-and-dried scheme that is not doomed to enormous waste of expenditure can be organised at once. Each district of India is probably a problem requiring study in itself, study whose object is not in one sense scientific research but simply the getting of information absolutely necessary to action. We must know: (1) What parts of India are especially dangerous as foci disseminating malaria and what parts are likely to become so? (2) In what parts of India should an attack upon the disease be begun at once—that is, in what parts is the disease most seriously interfering with increase of population and general prosperity? (3) In what parts of India is it unnecessary to take special action at present? (4) What are the conditions at any place or in any tract it is desired to take in hand? For in the absence of accurate knowledge one cannot possibly decide upon the feasibility or suitability of proposed measures.

All that one can say at present is that the first step should be some sort of organisation for first inquiring into and then dealing with malaria, for bringing to notice at once the occurrence of epidemics or even for foretelling their advent, so that by action taken on such intelligence their effects may be minimised. There should exist also a definite system or code of rules for dealing with such outbreaks by the best methods. Such a code can be arrived at only by gradual experience. To attack a temporary epidemic due to temporary causes by cut-and-dried operations, to allow a focus of malaria to form as has happened recently at Bombay, and then to attempt to control it, would not be one of the blunders of such an organisation.

In conclusion, then, we have on the one hand the advice to start here, there, and everywhere in India anti-malarial campaigns essentially anti-larval in character, on the type of the operation at Panama, &c. We can only say that such advice appears to us only possible of contemplation with a superficial knowledge of the Indian problem. We, indeed, would give advice fundamentally different. We believe the Government would be wrong to adopt methods so diametrically different from those now carried on with such excellent results by the Italian Society, who in practical malarial sanitation (especially in that dealing with agrarian conditions) and in national malarial prophylaxis are far in advance of present English ideas. But for so long as anti-larval operations with their comparatively enormous expense and uncertain results form, as it were, the necessary and conventional basis for every endeavour to control malaria under every condition, for as long, we believe, will the real attack upon malaria in India be delayed. We know that the expense of anti-mosquito operations is very great and that for application to rural areas they are utterly unsuitable. At present expenditure upon such operations is not justifiable except on the view that further experiments are desirable and that the expenditure is for the purpose of these experiments. In the meantime it is desirable that attention should be concentrated upon quinine prophylaxis, in accordance with methods that experience has already shown in Italy to be best adapted for the prevention and mitigation of malaria on a national scale.

Holding such views, it is not surprising that we look upon the prominence given by Professor Ross to the necessity of anti-larval operations for India and his insistence on the simplicity of the task as prejudicial to progress, and we cannot see that by bringing forward what are to us the facts in regard to Mian Mir we are hindering advance. Our view is that by stating the truth regarding such operations we are combating to some extent the great misfortune that India has for some years laboured under from the continual advertisement of anti-larval measures as the only right method of getting rid of malaria. Mian Mir is to us not a test case as to whether successful anti-larval measures are *possible*, but one relating to the feasibility, even the relative advisability, of anti-larval operations as the most important line of attacking India. It is apart from useful argument to insist that Mian Mir is still inadequately drained. It is, of course, obvious that the anopheles now apparently present in undiminished numbers bred somewhere, and very likely that they bred in sheets of water during and after heavy rain. The fact that a very energetic campaign failed to control such conditions indicates an amount of difficulty in dealing with malaria under such conditions at present realised by few. Yet these conditions are, so far as we can see, not more difficult than will be met with in almost every place where malaria is severe in India. It will serve no useful purpose to gloss over these difficulties and to create the impression that the problem of malarial prophylaxis in India is a simple and easy one when it is in reality complex and difficult.—We are, Sir, yours faithfully,

S. P. JAMES, M.D. Lond., D.P.H.,
Major, I.M.S.
S. R. CHRISTOPHERS, M.B. Vict.,
Captain, I.M.S.

Simla, India, May 26th, 1909.

[1] See a paper on The Human Factor, by S. R. Christophers and C. A. Bentley in the Transactions of the Bombay Medical Congress.

THE LONDON COUNTY COUNCIL AND THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

To the Editor of THE LANCET.

SIR,—I think it is to be regretted that public attention should have been called to the recent decision of Great Ormond-street Children's Hospital with regard to the treatment of London County Council school children. It is the result of precipitate action on the part of the committee of management without previous consultation with the medical committee. I have drawn the attention of the medical committee to the matter, and I have no doubt that the committee of management, who have always shown themselves exceptionally responsive to the suggestions and desires of the medical staff, will reconsider the question at the earliest opportunity. I am, Sir, yours faithfully,

J. HERBERT PARSONS,
Ophthalmic Surgeon to the Hospital.

Wimpole-street, W., June 18th, 1909.

COLOUR VISION IN THE MERCANTILE MARINE.

To the Editor of THE LANCET.

SIR,—The long and interesting letter of Mr. C. Devereux Marshall in this week's issue of THE LANCET regarding the colour vision in the Mercantile Marine leads me to mention a case which came under my notice about two years ago. A young man, about 26 years of age, came to my out-patient department complaining of defective vision. Examination revealed hypermetropia of *nine* diopters. Now this man had been at sea on the big Atlantic liners for some years and had acted as look-out on most of the voyages. He complained that it was almost impossible for him after being some time on watch to discern anything distinctly at any distance beyond a ship or two's length away, and at night he was almost blind as far as look-out work went. I provided him with correct glasses, at the same time warning him of the risks he ran, to say nothing of that to the ship and passengers, as long as he continued to go to sea as a sailor. I told him there was nothing to prevent him acting as a fireman. However, he turned up again a few months ago saying that he had been at sea and had been compelled to act in the same capacities as before, but had decided at last to give "sailoring" up now altogether. What sort of a visual examination can have been held to have passed such a man *twice?* It must be, as Mr. Marshall puts it, that "candidates are ..... at the mercy of a board who

seem" not possessed of "knowledge of the subject on which they are asked to adjudicate."

I am, yours faithfully,

Southport. June 19th, 1909. A. A. BRADBURNE.

TROPICAL ADENITIS AND PLAGUE.

To the Editor of THE LANCET.

SIR,—With reference to your annotation in THE LANCET of June 12th the following note bearing on the subject, which was personally investigated, may be of interest.

In January, 1906, owing to a couple of cases of bubonic plague having occurred amongst the Lascars of a transport which had conveyed a European regiment from the West Indies to Calcutta, the entire regiment was segregated on the maidan outside Fort William, and the men submitted to a thorough medical examination. Several suspicious cases of adenitis with slight pyrexia and malaise were detected and placed in an isolation hospital. These cases were added to daily for about a week, and although the specific bacilli could not be recovered, there was no doubt at the time that there was some relationship between the plague-infected ship and the cases of adenitis, which were diagnosed and treated as pestis minor. With a small dose of not very malignant plague bacilli the European develops adenitis or pestis minor, a not uncommon affection amongst laboratory workers in the tropical areas where plague is met with.

I am, Sir, yours faithfully,

E. B. KNOX, M.D. Dub., Captain, R.A.M.C.

Putney, S.W., June 19th, 1909.

HAMPSTEAD GENERAL HOSPITAL: THE MALCOLM MEMORIAL.

To the Editor of THE LANCET.

SIR,—At a meeting of the council held on Feb. 23rd last, it was decided to raise a fund amongst the friends and admirers of the late Mr. William Forrest Malcolm for the purpose of providing a suitable tribute to his memory. He was one of the founders of the institution and occupied the position of treasurer from its commencement to the end of his life, extending over a period of 28 years, and by his continuous work and munificent support was largely instrumental in placing the institution in its present state of efficiency and usefulness. With the approval of Mr. Malcolm's family, it has been decided that the memorial shall take the form of a portrait, to be painted by Mr. Hillyard Swinstead and placed in the board-room of the hospital.

The council has decided that subscriptions shall be limited to the sum of one guinea each, so that all may have an opportunity of showing their appreciation of Mr. Malcolm, whose loss is so deeply felt by all who knew him, and whose generosity and goodness must be admired by many who may not have been personally acquainted with him. To defray the cost of the painting the sum of 100 guineas will be required. Will those desiring to contribute, kindly send their subscription to the secretary at the hospital at their early convenience.

We remain, yours faithfully,

EDMD. K. BLYTH,
ERNEST COLLINS,
CHAS. JOHNSTON,
R. A. OWTHWAITE.
} Special Committee, Malcolm Memorial.

June 11th, 1909.

SALFORD GUARDIANS AND FEEBLE-MINDED GIRLS AND WOMEN.—The Salford Guardians are about to make a good move as regards the care of the feeble-minded girls and women who are now in their care or who may be so in the future. One of the lady members recently moved that a committee be appointed to consider the advisability of providing a home for them apart from the workhouse. The guardians have on their hands some buildings not in use which could be put in order and these poor creatures accommodated and an attempt made to draw out what mental powers they possess. It would, of course, be necessary to have a teacher trained in the care of the feeble-minded, but the mover of the resolution did not think the cost would be great. The disadvantage of the scheme, as compared with that carried out at Sandal Bridge, is, of course, that the inmates will be able to leave when they like, but the hope is that they may be induced to stay in a home where they could be taught housekeeping, laundry work, cooking, and so on. The motion was carried unanimously.

PLAGUE AND CHOLERA IN RUSSIA, SIBERIA, AND THE NEAR EAST.

(FROM THE BRITISH DELEGATE TO THE CONSTANTINOPLE BOARD OF HEALTH.)

Plague in Jeddah.

THE outbreak of plague in Jeddah has come to an end with the approach of the hot season. The statistics of the epidemic were brought down to the week ending April 11th in my last letter on the subject.[1] In the week ending April 18th only one case and one death occurred, and in that ending April 25th there were reported one fresh case and two deaths. The present revival of the disease lasted from Dec. 12th, 1908, to April 21st, 1909; in that period 178 cases, with 160 deaths, have been recorded. Of the 178 cases only 28 were seen during life, the remaining 150 came to the knowledge of the authorities only after death. Only ten of the cases were removed to hospital; of these six are said to have recovered, thanks to the treatment by serum; six other cases in the town were submitted to the same treatment, and of these four recovered. It is noted that the large majority of cases were bubonic in character; only four pneumonic cases were seen (two in life and two after death). In the bubonic cases the buboes were most often situated in the groin.

Yanbo appears to have escaped infection on this occasion. It is interesting, however, to note that an imported case of plague occurred at the lazaret of El Tor, in a member of the crew of a ship coming from Yanbo. This ship, the s.s. *Mariout*, arrived at Tor on March 1st; the patient was a stoker; he was the only case of plague seen this season in the Tor lazaret. The ship had been in Jeddah a full month and a half previously; had taken a batch of Egyptian pilgrims (among whom no cases of plague were observed) to Tor, where the ship had been disinfected and had its rats destroyed by a Clayton apparatus; had then proceeded to Yanbo, but finding no pilgrims there returned to Tor, where, as just stated, the case of plague occurred. It would seem that the ship had in all probability become infected when at Jeddah and that the infection had remained latent during a month and half. If so, the incident is in every way analogous with the occurrence of cases of plague in the Thames in the autumn of 1896 on board a ship from Indian ports; and both incidents tend to show that mere quarantine, unless it be prolonged over an impossibly long period, can never suffice to prevent the importation of plague from one country to another.

Plague in Bagdad.

It will be recalled that the outbreak of plague in Bagdad appeared to have come to an end in February, and that the town was declared "clean" on Feb. 23rd. But on May 5th two fresh cases were discovered; of these one occurred in the Abu Sefein quarter of the town, and the other in the Sedria quarter. In both districts (which are situated near the northern end of the town) plague was prevalent during the outbreak of last year. On May 12th three fresh cases were reported, and on the 23rd one. Since that date no further cases have been seen, and the measures which had been once more put in force upon departures from Bagdad by river and road were again suppressed on June 8th.

Plague in Bahrein and the Persian Gulf.

Outbreaks of plague have occurred more than once in recent years in the Bahrein Islands. This group of islands is situated on the south-western shores of the Persian Gulf and is under British protection. The reappearance of the disease there was reported on May 12th, when 3 cases and 2 deaths had occurred. Down to May 15th there had been 6 cases with 4 deaths. In the week ending May 22nd as many as 18 deaths from plague were recorded, but in that ending May 28th (*sic*) the number of deaths fell to 3. The health of the other Gulf ports has remained good. The only measures imposed in Turkish ports against Bahrein have been a medical visit, disinfection, and application of the circular concerning rat destruction.

Some other imported cases of plague have recently occurred in other ports of the Persian Gulf. On April 14th a case was landed at Muscat from the ss. *Africa* and died on the 16th.

[1] THE LANCET, May 1st, p. 1279.

Towards the end of the same month the ss. *Dumra* arrived at Bushire (on the Persian shore) from Basra; during the voyage three deaths from suspected plague occurred on board and another case (a sailor) was landed in the Bushire lazaret. This was a case of pneumonic plague, and the diagnosis is said to have been confirmed bacteriologically. At present only telegraphic information in regard to these occurrences has been received here.

Cholera in Russia.

The records of the cholera epidemic in St. Petersburg were brought down in my last letter to the week ending March 21st (April 3rd). Since then the returns have been as follows:—

	Cases.	Deaths.
Between March 21st (April 3rd) and March 28th (April 10th)	13	2
,, ,, 29th (,, 11th) ,, April 4th (,, 17th)	29	3
,, April 5th (,, 18th) ,, ,, 11th (,, 24th)	19	1
,, ,, 12th (,, 25th) ,, ,, 18th (May 1st)	8	2
,, ,, 19th (May 2nd) ,, ,, 25th (,, 8th)	12	6
,, ,, 26th (,, 9th) ,, May 2nd (,, 15th)	10	2
,, May 3rd (,, 16th) ,, ,, 9th (,, 22nd)	4	1

Finally, on May 14th (27th), no fresh cases having occurred in St. Petersburg, the Russian authorities declared the city merely "threatened" instead of "infected" with cholera. It should be added that all the cases and deaths mentioned above were confined to the capital. The following revised figures have now been issued by the Russian authorities for the weekly records of the epidemic in St. Petersburg since its beginning in August last; the figures do not in all instances quite agree with those published week by week:—

Week ending	Cases.	Deaths.	Week ending	Cases.	Deaths.
August 30th	197	53	Jan. 10th	273	114
Sept. 6th	1805	567	,, 17th	193	52
,, 13th	2568	1113	,, 24th	160	42
,, 20th	1535	703	,, 31st	141	40
,, 27th	794	381	Feb. 7th	109	39
Oct. 4th	418	193	,, 14th	88	25
,, 11th	257	111	,, 21st	68	27
,, 18th	126	71	,, 28th	46	11
,, 25th	103	44	March 7th	42	6
Nov. 1st	105	34	,, 14th	25	5
,, 8th	70	26	,, 21st	10	3
,, 15th	112	32	,, 28th	13	2
,, 22nd	154	45	April 4th	29	3
,, 29th	171	66	,, 11th	19	1
Dec. 6th	120	40	,, 18th	8	2
,, 13th	107	38	,, 25th	12	6
,, 20th	121	36	May 2nd	10	2
,, 27th	96	40	,, 9th	4	1
Jan. 3rd	178	46			

The total number of cases recorded in St. Petersburg has, therefore, been 10,287, and that of deaths 4020. The dates in the above table are all according to the Old Style.

In the letter already referred to, I drew attention to the question of the water-supply and drainage of the Russian capital; both these questions are now being seriously taken in hand by the Russian Government. A special Commission has been appointed by the Minister of the Interior to inquire into, and to report upon, the whole matter. The terms of reference to the Commission include five main headings; these are (briefly put) as follows: (*a*) system of sewers and disposal of dry refuse; (*b*) house drainage; (*c*) the water-supply of the city; (*d*) the financial aspects of the new schemes; and (*e*) laws and by-laws respecting drainage and water-supply.

Plague and the "Tarabagan Disease."

It has been known for many years past that in Eastern Siberia and Mongolia the marmot, or "*tarabagan*," suffers frequently from a fatal disease, which may be transmitted to man and produce in him symptoms indistinguishable from those of bubonic or pneumonic plague. From time to time I have published in THE LANCET abstracts of the principal communications to Russian medical journals on this subject, and have pointed out that, while clinically the "*tarabagan* disease" in man closely resembles plague, bacteriological proof that the two diseases are identical has hitherto been wanting. An article by Dr. B. A. Barykin,[2] dealing with this particular aspect of the question, is therefore of special interest. Dr. Barykin in the autumn of 1906 and that of 1907 made expeditions to certain districts known to be infected with the "*tarabagan* disease." He records the following facts (the details closely resemble those of outbreaks previously reported). From the spring to the autumn of 1906 there was a high mortality among the marmots round the settlement of Abogaitui, situated 30 versts from the station of "Manchuria." The inhabitants were fully aware of the danger and avoided all contact with the sick animals—with one exception. This was a Cossack, who was in indifferent health and particularly fancied the delicate flesh of the *tarabagan*. On Sept. 23rd he fell ill with the symptoms of plague and died on the 27th. The disease spread from him to others; in the end eight persons fell ill and all died; in all the symptoms were those of pneumonic plague. Necropsies were made in two cases; the organs were found to contain bacilli indistinguishable from those of plague; mice were injected with juice from the spleen of one, and died in 26 hours with all the appearances of having died from injections of Yersin's plague bacillus.

In the autumn of 1907 a large number of marmots were killed or caught by Dr. Barykin's party, and examined for the presence of disease. In one of these animals, which showed no external sign of being ill save a certain degree of general malnutrition, the spleen was found to be swollen and congested, and it contained large numbers of bacilli which presented all the morphological and cultural characteristics of plague bacilli. Later preparations of these organisms were shown to Professor Zabolotny and Professor Savtchenko, both of whom regarded them as in all probability true plague bacilli. A fortnight after the discovery of this infected animal the following incidents occurred in a district some 20 or 30 versts away. A Cossack family had settled in a lonely and isolated spot where marmots abounded. The men amused themselves with hunting the marmots, and one day killed one that showed clear signs of illness. In spite of warnings from the older men they skinned the animal; the body was recognised as unfit for food and was given to a girl, aged 13 years, to take back to the fields and throw away. This girl dragged the body (weighing about 15 pounds, it is said) after her through the grass, and returned to the settlement along the same path. She was barefooted. On the next day she fell ill, a bubo appeared in the left groin, and there were all the symptoms of an attack of plague; she died some days later. From the bubo, from a pustule on one finger, and from the spleen bacilli indistinguishable from those of plague were isolated; injected into mice they caused death in 18 hours, with symptoms of septicæmia. It was impossible to examine the body or skin of the animal. The men appear to have escaped infection. In the same autumn a guard at the station of Khara-Nor, and a Cossack woman at that of Sharasun both died from a disease resembling bubonic plague; the former had hunted marmots, the latter had skinned the dead animals. Sick marmots had been seen in the neighbourhood in both instances. In the case of the guard the organs were found to contain bacilli which microscopically were identical with those of plague. As a result of inquiries elsewhere it was ascertained that in the district round one station only—that of Tsagan-Oluevsk—ten outbreaks of this plague-like disease in man had occurred in the preceding nine years. None of them were very severe, and the people themselves took precautions to prevent its spread.

Constantinople, June 10th.

[2] Russkii Vratch, April 18th, 1909.

THE SCHEME FOR ENGLISH AID TOWARDS MEDICAL EDUCATION IN CHINA.

(FROM OUR SPECIAL CORRESPONDENT.)

THE reports having arrived of the meeting in the Mansion House of the China Emergency Committee, to which Sir Robert Hart lent his aid, it might be advisable to comment on the scheme from the local point of view. Those of us who are on the spot and are interested in the cause of medical education on Western lines among the Chinese, find our chief difficulty lies in the stolid indifference of the people and the greater part of the official class (roughly about eight-tenths of the latter) to the benefits of modern medicine and surgery. The foreign hospitals find most of their work lies in the treatment of surgical ailments. Among the better classes medical treatment is comparatively rarely

sought, and it must be admitted that the empiric methods of the native doctors are often successful in the end. An official once told me that his chief objection to foreign doctors lay in the fact that their dietetic ideas were so totally different from what he had been all his life accustomed to, and that he found the regimen of milk, eggs, and cod-liver oil, which he had been ordered, nauseated him. At the Tung Wa Hospital at Hong-Kong (under Government auspices), where the patient has the option of choosing whether he will be treated on foreign or native lines, it has been found that, according to the returns, of 2687 who were treated in one year, 1422 elected to place themselves under foreign treatment, while 1265 chose the Chinese methods. There was a total of 884 deaths, of which 400 occurred under European treatment and 484 on the native side, but the figures lead to no deductions worth anything. The public mortality in China is far too high for us to stand idly aside and not use every endeavour to impart the benefits which we know Western science can bring, and the all-important consideration is as to how best to do this. And there can be little doubt that the main item must be the supply of teachers to *existing institutions*—men who can face the task of studying the language and of getting a sufficient grasp of it to talk fluently and come into personal contact with their students. A point of difficulty is that foreign education in China is in the hands of medical missionaries, and there are many better-class Chinese who fight shy of sending their sons to religious institutions. The native medical "profession" is not greatly respected—long ages of charlatanism have relegated it to a place analogous to that occupied in England in the time of the barber-surgeons, and it is not looked upon as an honourable calling to any extent. But China is changing rapidly; a few years ago a military career was looked down upon by civilian officials, whereas at present cadets are being sent from good families to become army officers. There is therefore no reason why a number of good examples of native scientific medical men should not open the eyes of the officials and people to the advantages obtainable. The Oriental makes a first-class student; he is logical, persevering, intelligent, and memorises well. Practical anatomy is not as yet legal in China, but teaching from models has, so far, been found satisfactory. A number of students, taught by Dr. W. W. Myers of Formosa, were recently sent from there to Shanghai to be examined. As there happened to be material available for dissection in the public mortuary, they were examined on it, and although it was the first acquaintance they had had with human dissections they all passed the tests most satisfactorily.

The biggest foreign medical college is at Peking. There are also medical schools at Tientsin, Hankow, Hangchow, and Shanghai, but they are scarcely able to take students through a whole course by reason of their limited staff, who, in addition to teaching, have their hospital and missionary duties to attend to. It would therefore be advisable for the China Emergency Committee to obtain particulars from already established colleges as to what subjects are most urgently in need of lecturers, and having found these, to concentrate its efforts in obtaining professional men willing to sign an agreement for a sufficiently long time to repay their enforced language study period of at least one year after arrival. An experience of a few years in these institutions will be all to the good when the time comes for expansion in opening medical colleges in which, as far as the Chinese are concerned, there is no religious influence. In Peking, at any rate, the medical teaching missionaries have been broad-minded enough to forego the imposition of any religious tests on their students. Medical education is not a thing of creeds and sects, and while China is under an incalculable debt to missionary enterprise, there is room for the establishment of medical science among a large class who refrain from sending their sons to missionary schools. The past year has seen the establishment in Shanghai of a German medical college in which the instruction is given in German. It is well supported from the Fatherland and is in possession of a splendid equipment. Certain instrument-makers have sent out a complete supply of surgical instruments, two firms have each presented Roentgen-ray apparatus, while some booksellers have supplied a splendid library of up-to-date German medical literature, and a plentiful supply of drugs has been given by a number of drug firms to the pharmacy. The teaching staff has been formed of men specially sent out who stand high in the profession in Germany and are already making their school one of the best in the Far East. In this practical way are our Teutonic neighbours going ahead. Every student who will pass through that school is a Germanophile and will use German instruments and be a prescriber of German drugs, which are being imported in annually increasing quantity.

We should get rid of the idea that China is calling with outstretched hands for our philanthropic charity. Such is not the case. Whenever China can oust the foreigner from her schools she will do so; she intends to follow in Japan's footsteps in this respect as soon as she conveniently can. During the past year she has dismissed the international foreign staff of the Peking Imperial University, even the Japanese professors have been sent back. As far as medicine is concerned the more enlightened officials recognise they have much to learn. It therefore behoves us to make use of the present opportunity for the people's sake to put her in possession of a body of well-trained Chinese medical men who will be the educators of her future students on sound lines—a question of the next ten years if one might hazard a guess from experiences of similar educational movements.

May 13th.

NEWCASTLE-UPON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

Health of Newcastle.

Dr. H. E. Armstrong, medical officer of health of Newcastle, in his thirty-sixth annual report, states that the death-rate from all causes during the year was 17·3 per 1000 population, the lowest but one on record. The death-rate from the seven chief zymotic diseases—i.e., small-pox, measles, scarlet fever, diphtheria and membranous croup, whooping-cough, fever, and diarrhœa—was 1·32 per 1000 population, against a corresponding rate of 1·58 for the 76 largest English towns.

Vaccination Fees in Newcastle-upon-Tyne.

The question of the fees to be paid in respect of vaccinations to the officer of one of the districts in the city is still being actively discussed. It may be remembered that, as noted in these columns, the guardians recently decided by a somewhat narrow majority to retain the old scale of payment of 4*s.* 6*d.* per case to the officer to be appointed to a vacant district, rejecting the recommendation of their finance committee that the fee be reduced to 2*s.* 6*d.* The matter has now been taken up by the ratepayers' association, and at a meeting of this body last week a resolution was passed protesting against the action of the guardians in fixing the fee at 4*s.* 6*d.* Copies of this resolution are to be sent to the Local Government Board, the district Government auditor, and to the board of guardians. A deputation was further appointed to wait upon the guardians in the matter.

Opening of a Sanatorium at Chester-le-Street.

A couple of years ago the Chester-le-Street local authorities were compelled by the Local Government Board and the county council to build a hospital for the treatment of small-pox. A building was therefore erected at a cost of £2500. Small-pox having been banished from the district it occurred to the local authorities that inasmuch as the building had never been once used for that purpose for which it was originally intended it might be utilised in another way. The building, after some alterations and a further outlay of some five or six hundred pounds, has now been formally opened as a sanatorium for the treatment of consumption, 26 beds being available. The need for such an institution being great in the district the township is to be congratulated on its efforts in this direction.

Inter-university Students' Congress at Durham.

About 50 delegates from the various universities will be present at this Congress, which will commence on June 29th and continue until July 3rd. In supplement of the business sessions to be held a considerable programme of social arrangements has been made, amongst these being a reception at the College of Medicine on July 1st at the invitation of the President and Council of the College. In connexion with the Congress, some inter-university sports will be held in the College of Medicine athletic grounds in Newcastle.

June 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Resignation of Professor Chiene, Edinburgh.

AT a meeting of the Edinburgh University Court held on June 14th an application was submitted from Professor John Chiene for permission to retire from the chair of surgery. The court granted the request and agreed that it should take effect as from August 31st next. As was intimated recently in THE LANCET, Professor Chiene has not been in good health and on that account he had obtained leave of absence from his duties both in the University and in the Royal Infirmary. Professor Chiene is a graduate of Edinburgh of 1865. After graduation he was house surgeon to Professor Syme, and thereafter demonstrator of anatomy with Professor Goodsir. In 1882 he succeeded Professor Spence in the chair of surgery. He was for many years a popular teacher in the University. The candidates for the chair are members of the surgical staff of the infirmary. The chair is under the patronage of the Board of Curators, which at present consists of the Principal of the University, two Lords of Session, the Lord Provost, and three other representatives from the town council. At the same meeting of the University Court Professor Kirkpatrick was permitted to resign the chair of constitutional history, and Dr. Joseph Bell was appointed a curator of patronage as from Oct. 21st next, when Lord Stormonth Darling's term of office expires.

Medical Inspection of School Children in Fifeshire.

A conference was held between the Fife County Education Committee and the chairmen of school boards in the county to consider this subject. A committee, to consist of five members from Dunfermline district, five from Kirkcaldy, four from St. Andrews, four from Cupar, and two from Kinross-shire, was appointed to act along with the county committee in carrying a scheme into effect and to appoint assistant medical officers to carry it out. Dr. T. F. Dewar, county medical officer, will act as chief medical inspector, and there will be four male assistants under him and one lady medical officer for special cases. The inspection is estimated to cost 1*s.* per pupil. There are in the county (exclusive of Dunfermline burgh), 43,672 children, attending 135 schools.

Medical Inspection of Dundee School Children.

As provided by the new Education Act the Dundee school board has adopted the following scheme for the medical inspection of school children: a principal medical officer to be appointed, commencing with salary at £400, an assistant medical officer at £250, and two nurses at £70 each per annum, all being required to give their whole time to the work. With £210 for appliances, &c., the scheme will cost £1000 per annum, half of which falls to be met by Government grant.

Tuberculosis in Aberdeenshire.

At a conference of local authorities held in Aberdeen on March 12th, the question of what could be done with regard to the administrative control of pulmonary phthisis was discussed, and as a result Dr. J. P. Watt, medical officer of Aberdeenshire, has sent a circular to the medical men in the county as follows: "The local authorities within the county have had under consideration the circular of the Local Government Board, dated July 12th, 1908, dealing with pulmonary phthisis, and recommending, amongst other measures, that an endeavour should be made to isolate and treat certain cases of the disease, with the view of enabling the respective local authorities to form some idea of the extent to which provision for such cases might be required. I shall deem it a great favour if you will be so good as to fill up the accompanying schedule, and return it to me at your earliest convenience. I beg to enclose copy of a suggested scheme for dealing with pulmonary phthisis in the county, along with a statement submitted to a meeting of local authorities on March 12th, 1909, and I should be glad to know whether you would approve of such a scheme either in whole or in part. As the subject of phthisis is one in which all are interested any remarks or suggestions you may care to add will be most heartily welcome." The questions to which replies are requested are: "1. How many cases of pulmonary consumption are presently being treated by you? 2. Of these cases how many are (*a*) in the early stage; (*b*) in the advanced stage? 3. Of the early cases how many would be likely to take advantage of sanatorium treatment if offered (*a*) at a charge of 20*s.* to 25*s.* per week; (*b*) free? 4. Of the advanced cases how many are circumstanced that hospital isolation would be (*a*) advisable; (*b*) likely to be taken advantage of if offered free?"

June 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Burial of Bodies after Dissection.

THE burial of the bodies of the inmates of the metropolitan unions and the other destitute poor is a subject which is at present receiving a good deal of public attention—as is the correlated one of the accommodation and mode of interment afforded in the Catholic cemetery of Glasnevin. Both were discussed by the Dublin corporation last week and by the guardians of the North and South Dublin Unions. At a meeting of the board of the North Union held on June 16th it was proposed:—

That as the statement of accounts of Glasnevin cemetery shows that some £1500 was invested last year, and some £1473 was received for interments, the North Dublin Union again request the cemeteries committee to receive a deputation from the board with a view to having certain grievances remedied, notably the excessive charges for burial and the system of "pit" burials.

After the adoption of this motion it was moved:—

That this board, having learned that the bodies of the poor transferred from this house to the dissecting schools do not receive Christian burial, now orders that no more dead bodies of the destitute poor go to these schools until arrangements are made for their interment in compliance with our resolution.

The originator of this motion had been convinced that "the unfortunate people buried in the 'pit' did not receive a Christian burial." The discussion was adjourned with an emphatic expression of the necessity for the fullest investigation. The subject is one of great importance to the Dublin schools of medicine.

The Belfast Harbour Commissioners and the City Council.

Under the Municipal Act of 1899 the city corporation of Belfast entered into a contract to erect purification works within three years from August, 1899. No purification works were erected, and as a result crude sewage escaped from the imperfect outfall shute and entered the Harbour Commissioners' channel, with the result that in 1905 it became necessary for the harbour board to remove it, and some 500,000 tons of crude sewage have been removed from the harbour channels at a cost of about £15,000 to the harbour board. That amount was claimed from the city council of Belfast, and the matter has been settled for £6000. A smaller sum was accepted than that claimed, it being thought that it would be unwise for two public boards, trustees for the people, to enter into litigation.

The Double Tenancy Question in Belfast.

At a meeting of the public health committee of Belfast held on June 17th the executive sanitary officer submitted a return in connexion with the number of notices served in the case of double tenancies in the various wards of the city, together with the number of tenants affected, and how many of these are females. In no case, excepting those where the entrance to the yard is in direct communication with the hall, can the upper tenant have access to the yard at all hours. The entrance to the yard is either through the kitchen and bedroom on the ground floor or through the kitchen and passage, which is generally used as a scullery. The upper tenant has, therefore, to pass through some of the apartments on the ground floor, which cannot be said to be accessible at all hours. The water-supply is fixed either in the hall, kitchen, or passage leading to the yard, scullery, or yard. The rent varies from 1*s.* 3*d.* to 2*s.* 6*d.* per week for ground floor and from 1*s.* to 2*s.* per week for upstair portion. There are a total of 772 such houses in the various wards of the city of Belfast, and 263 female occupants of ground floor, 366 of first floor, and 16 of second floor, so that the total number of females occupying such tenement houses is 645 and males 942, making a total number of occupants of 1587. The total number of these houses with more than two families is 36. It is said that of 818 notices served only one case agreed in

every particular with an opinion given by counsel as to the kind of a case that should be taken as a test.

Belfast and County Antrim Branch of the Medical Benevolent Society of Ireland.

At the annual meeting of this society held in Belfast on June 18th it was reported that for the past year the total sum raised was £164 6*s.* 11*d.*, and deducting the sum of £3 8*s.* 5*d.* for expenses, £160 18*s.* 6*d.* was forwarded to the central treasurer, being £13 19*s.* 3*d.* more than last year.

July 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Remarkable Transplantations of Organs and Tissues.

AT a meeting of the Academy of Medicine held on June 8th, Professor Pozzi, who had not long returned from America, created some sensation by his account of the remarkable transplantations of organs and tissues accomplished by Dr. Carrel of New York, and already referred to on more than one occasion in your columns. Dr. Carrel, a Frenchman, who commenced his medical studies at Lyons and afterwards proceeded to Chicago, is at the present time one of the directors of the Rockefeller Institute in New York. By means of sutures of extraordinary fineness combined with thoroughly aseptic conditions, he has succeeded in closing severe wounds of arteries, including the aorta. At length gaining courage, he replaced portions of the aorta by flaps (*lambeaux*) of muscular tissue covered with peritoneum; he has also transplanted blood-vessels and replaced a portion of the carotid artery by a similar portion of the femoral vein, and when the animals on which these various operations had been performed were killed after the lapse of a sufficient interval, it was seen that a complete substitution of one tissue for the other had taken place. Dr. Carrel has found that portions of veins or arteries removed from a living animal can be preserved for weeks and months hanging in a moist atmosphere in sterilised glass tubes hermetically sealed and kept at a temperature of 0°C. These portions of tissue retained their vitality so well that one of them could with complete success be substituted for a corresponding amount of the femoral artery of a living animal. As soon as the suturing was completed, the inserted portion, which had previously been somewhat pale, became pink, and an incision made at the extremity of the limb immediately yielded a drop of blood, showing that the circulation had been re-established. Proceeding further in the same direction, he replaced the abdominal aorta of a bitch by an artery taken from the newly amputated leg of a young man. Professor Pozzi stated that Dr. Carrel had removed the spleen, kidney, and thyroid body of animals and re-implanted them in a few moments, suturing their principal vessels, with the result that these organs immediately began to act. He has also transplanted entire limbs from one animal to another, replacing the fractured paw of a dog by a paw taken from a different dog. Dr. Carrel considered that there was every reason to believe that similar operations would succeed equally well in the human subject, but he has not yet made the attempt, although several Americans have declared themselves willing to have a missing arm or kidney replaced by one taken from a newly executed criminal.

The International Tuberculosis Society.

In May, 1910, this society, of which Professor Lancereaux is the president, will distribute several prizes and medals to the authors of the best works on the subject of tuberculosis. These awards will include a prize of 300 francs, one of 100 francs, and two of 50 francs each; there will also be two gold and three silver medals, each accompanied by a *diplôme d'honneur*. Intending competitors, whether French or foreign, should send their essays (*leur mémoire*) in a sealed envelope to the general secretary, M. Georges Petit, 51, rue du Rocher, Paris.

Treatment of a Case of Slow Pulse.

At a meeting of the Société Médicale des Hôpitaux, held on June 4th, M. Ramond and M. Lévy-Bruhl described the case of a man, aged 31 years, who, after being severely injured by a fall, presented symptoms of slow pulse accompanied by vertigo and attacks of syncope. Before being seen by M. Ramond he had been a hospital patient for long periods and had undergone various methods of treatment without any benefit. The obtaining of a negative result with the atropine test suggested the existence of a lesion localised in the fasciculus of His, and M. Ramond accordingly gave several injections of biniodide of mercury. The pulse-rate rose rapidly from 38 to 44, 56, and at last to 68, the vertigo and attacks of syncope disappearing at the same time, but after somewhat violent bodily exercise there was temporarily a certain amount of vertigo, together with a fall in the pulse-rate to the extent of four or five beats per minute.

June 21st.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Il Congresso Forestale.

THE event of the week has been the Reafforestation Congress at Bologna, an assembly of the first importance for the subject dealt with and the men of authority who intervened. The subject, in varying degrees of interest, appeals to all nationalities. Open a consular report from whatever part of the outlying world, and one cannot fail to find references to the disastrous results of unchecked tree-falling and to the measures, in many cases too late, to retrieve those results. The latest of these, Mr. E. L. Harris's report from Smyrna to the United States Government, tells of Asia Minor what is a thrice-told tale of the Mediterranean countries:—"Much to the detriment of soil and climate..... the trees chopped down are never replanted, and after a few years the mountains, where once stood stately pines and cedars, are covered with miserable scrub and brushwood." Appropriately convened in the noble hall of the Chamber of Commerce, the Bologna Congressisti were first addressed by the Minister of Agriculture, his Excellency Signor Cocco-Ortu, who went at once to the central point of the programme—the most urgent affecting Italy, "where," he said, "the floods, the land-slips, the avalanches caused by the ruthless destruction of the woods that once clothed and crowned the hills, bring sudden devastation and misery to the lowlands, making it necessary, *inter alia*, to import from countries less improvident than ours the fuel and the material for railways, house building, and dockyards." Of this necessity Italy had painful experience after the Siculo-Calabrian cataclysm, when the homeless survivors had to wait for days, nay weeks, in midwinter before the wooden huts could be run up for their accommodation. Passing next to the remedial measures prescribed by this state of things, Signor Cocco-Ortu gave an account of the legislation, past and present, by which successive Governments had sought to rehabilitate the denuded uplands, showing the urgent need of better instruction at the two schools of forestry, that of Vallombrosa in Tuscany and Cittaducale in the Abruzzi, and of no less urgent need of a better "forestal service," the present one being underpaid and undermanned, and its surveillance of the forest districts altogether perfunctory. The speech of the day, however, indeed I may say of the Congress as a whole, was that of Italy's greatest financier, a member of the old Parliamentary Right from which her best statesmen have been drawn—Signor Luigi Luzzatti. Deploring that "strage" (tree-slaughter) which has reduced the slopes of the Alps and the Apennines to prairie, and made Italy dependent on foreign countries for timber costing her many hundred million francs a year, the orator plunged into financial proposals by which, where not too late, the means might be found for re-acquiring for the State the control of those denuded uplands, let out in many cases as pasture, and for proceeding to the work of reafforestation inspired by better schools of forestry and officered by a more efficient corps of inspectors. These proposals, carried into law, may take a generation to operate, but "our sons," he said, "will enjoy their salutary working in their exemption from floods, from degenerate soil, and the malaria it brings in its train." Hitherto, Italy has been lavishing her energies on the "symptoms," not on the "disease"; on the effects, not on the *causa causans*. She spends annually vast sums on embankments of rivers liable to autumnal inundation, till some of these have come to look like overhead canals or aqueducts, while neglecting the reafforestation which is the true preventive. In like manner, to antagonise the malaria-carrying mosquito,

she gives money grants for the supply of quinine and wire gauze to the *campagnuoli*, while leaving the soil, with its vegetative energy unutilised, to degenerate under drought and stagnant pools. Italy has begun at the wrong end and cannot too soon return to the thorough systematic cultivation which made her, under the beneficent sway of the Antonines, the happiest of countries—when the Campagna was a smiling garden, or series of farms, with its hillocks discharging their surplus water into *fossae* which in turn debouched into the Tiber. To restore Italy to her long-lost balance between forest-growth and river-flow, from which the soil and its cultivator derive health and prosperity in equal measure—such was Signor Luzzatti's ideal, based on proposals to which the Congressisti could not but give a benevolent adhesion. Other speakers followed, conspicuous among them being the Commendatore Bertarelli of the Italian Touring Club, whose services he volunteered to the Government in the work of propaganda, to bring home to the mountain population the harm done by reckless tree-felling and to aid the "forestal inspector" or engineer in his efforts to preserve what still remains of the ancestral woods. At a subsequent sitting Signor Pini, speaking as a member of the Italian legislature, tabled some useful suggestions for the better organisation and efficiency of the forest *personnel;* and another distinguished parliamentarian, Signor Brunialti, pleaded for the "geologico-botanico-idraulico studio" of the mountain river-basins—the necessity for which he urged with scientific cogency and expository clearness. On its rising the Congress was entitled to claim for its proceedings a distinct step forward in the realisation of the great problem it has been convened to discuss. It remains for public opinion so to express itself through its legitimate channels, above all at the polling booth, as to leave the Government without excuse for postponing the solution of that problem, as so often previously, to the advent of its successor—in other words to the Greek Kalends!

June 19th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending May 8th show 4279 deaths compared with 4411 in the week preceding. For the same two weeks Bombay Presidency reported 553 against 708, Bengal 319 against 212, the United Provinces 748 against 408, the Punjab 2525 against 2712, Burma 46 against 76, and Central Provinces 75 against 67. Six cases with five deaths occurred in Jammu district, Kashmir, during the week ending May 8th.

The Health of Bombay.

With the arrival of the hot weather the usual improvement in the health of the native population is reported. Cholera has almost disappeared and the general health of the city is once more very satisfactory. The proportion of plague-infected rats has considerably decreased and the incidence of plague itself has again fallen. The total number of deaths reported for the week ending Tuesday, May 11th, was 895, which includes six cases of imported cholera and plague, as against 1053 for the previous week and 905 in the corresponding week of last year. If deaths from plague be excluded the total deaths were 582, which represents a death-rate of only 30 per 1000. The deaths from plague for the week were 313, against 430 for the previous week and 260 for the corresponding week in 1908 and a five yearly average of 475. The number of deaths from small-pox for the week shows a slight increase, 24 against 17 the previous week, 54 the corresponding week last year, and 26 the mean for the last five years. Cholera caused ten deaths, three of which occurred in imported cases.

Popularising Quinine.

The education department has coöperated with the inspector-general of civil hospitals in the Punjab in popularising the use of quinine. In a circular to the inspectors of schools throughout the Punjab the director of public instruction says that he has been informed by the inspector-general of civil hospitals that the widening of the agency for the distribution of quinine has been attended with excellent results, the sales during the year 1908 having far exceeded those of previous years. In view of the common prejudice against the use of the drug it is suggested that inspecting officers of the education department might be invited to coöperate with the officers of the medical department in their efforts to remove this mistaken impression. Inspectors have been requested when visiting schools to inquire into the arrangements made for the sale of quinine and to urge school teachers to bring this remedy to the notice of the people with whom they come in contact. District and assistant district inspectors have also been requested to do this.

The New Quarters for Army Nurses at Jhansi.

The quarters for the nursing sisters of Queen Alexandra's Military Nursing Service for India are nearly completed and should be occupied before many months. Jhansi has been in need of lady nurses for duty in the station hospital for some years past, and considering the size of the garrison the authorities are quite right in supplying the long-felt want. While the army nursing service has been increased out of all proportion in the United Kingdom little or no increase has been effected in India, where there is really very much greater scope for trained ladies. Successive principal medical officers on the headquarter staff in Simla have pointed out the numerical inadequacy of the present nursing service in India, but the Indian Government will not vote funds for an increase of the present meagre establishment.

A Pasteur Institute for Burma.

It has now been definitely decided to build a Pasteur Institute in Burma, and an excellent site has been selected to the east of Maymyo Cantonment on a ridge about 3650 feet above sea level. The main building of the institute and the bacteriological laboratory are to be centrally situated in a combined double-storey bungalow. The vaccine department and pathological and parasitological laboratories are to be single-storeyed bungalows. The cost of the entire institute is estimated at Rs. 578,229.

The Walker Hospital, Simla.

The Walker Hospital at Simla has now become such an indispensable institution that one cannot understand how cases of serious illness among residents in Simla were treated before its foundation. It has a splendid record of success, especially as regards surgical operations, and on the medical side many an enteric fever patient has benefited by the careful attendance and skilled nursing obtained in its wards. The fees charged are moderate, and the income from this source does not go far towards meeting current expenses. The Indian Government and the Simla municipality render aid, directly and indirectly, but the financial position has always been rather a precarious one. In the United Kingdom hospitals rely greatly upon regular public subscriptions, bequests, and special donations, but in India one cannot look for any considerable sums of this kind. Patients come for treatment from the Punjab, the United Provinces, and even further afield, but subscription lists for the hospital are unknown in the plains. In Simla itself there are so many demands for various charities that both the Walker and the Ripon Hospitals fare badly when money has to be collected for them. The question of funds in regard to the former is an urgent one and the committee is now considering how it can best be met. It is not possible to increase the fees, and Government will have to be appealed to for further assistance. Public entertainments of some kind, such as those organised by Lady Collen years ago, may give occasional lump sums, but a permanent endowment is really required. At the same time, an active canvass for subscriptions might be instituted, and this should not be confined to Simla.

Obituary.

Captain C. D. M. Holbrooke, R.A.M.C., died at the Station Hospital, Wanowrie, Poona, on May 6th, from abscess of the liver. The deceased officer, who was only 30 years old, had been stationed at Poona for some time, where he was very well known and popular. The funeral took place the same evening and was largely attended by the officers of the Poona garrison. Captain Holbrooke entered the service in January, 1905, and was promoted captain in the Royal Army Medical Corps in July, 1908.

May 18th.

THE DARWIN CENTENARY.

THE Centenary of Charles Darwin, which was inaugurated in his University of Cambridge on June 22nd, is a celebration perhaps unique in the world. If it cannot be said that mankind from China to Peru is united in honouring the memory of the protagonist of Natural Selection, yet a glance at the list of delegates, as published in several of the leading lay papers, shows that they come from countries so far distant the one from the other as Japan and Chile. Darwin's great work of course was not so much the statement of the doctrine of Evolution, for that doctrine had occurred to many minds previously, but the enunciation of the theory of Natural Selection, an explanation of the working of evolution, the honours of which he shared to some extent with Dr. Alfred Russell Wallace. The celebration lasted for three days and showed in a marked manner that, despite the genuine importance attaching to the recent developments of Mendelism, and the remarkable work of Bateson and de Vries, the scientific world accepts the views enunciated by Charles Darwin and regards them as the foundation of modern biology, considering that the theory of evolution by natural selection is still the most valuable weapon with which the problems of biology can be attacked, an opinion that can be shared by many stalwart Mendelians. The applause in the Cambridge Senate House with which the speeches of Lord Rayleigh, Professor Hertwig, M. Metchnikoff, Professor Osborn, and Sir Edwin Ray Lankester were received, shows how firmly the great Darwin is seated on his lofty pedestal.

Tuesday was devoted to the reception of delegates and other invited guests by Lord Rayleigh, the Chancellor of the University. The formal reception at the Fitz-William Museum was of an imposing character, suitable to the magnificent building in which it was held. Lord Rayleigh, wearing his robes of office, scarlet and black, received the guests of the University, all of whom were wearing academic dress or uniforms and orders. The museum, rich in the paintings of distinguished British and foreign artists, rapidly filled, and many of the guests streamed out into the adjoining gardens of Peterhouse, thrown open by the Master and Fellows of the senior college. The famous lime-tree avenue and the gardens beyond were decorated with Chinese lanterns, and the paths and flower-beds were bordered with fairy lights. The mixture of robes and uniforms and the dresses of the ladies contributed to make the scene a gorgeous pageant of academic life, linking up the knowledge of to-day with the traditions that go back to the earliest beginnings of the Middle Ages.

Wednesday was occupied with the presentation of addresses, visits of the delegates to various Colleges, the great banquet in the evening, and a garden party given by the Master and Fellows of Christ's College, of which Darwin was a member. At an early hour the Senate House was filled, and the delegates—some 243 in all—were in their places to offer to the University of Cambridge their eulogies of one of her most famous sons. The galleries were occupied by graduates and undergraduates, members of the University, and by ladies. At half-past ten the audience rose to welcome the Chancellor, who entered the building with the Vice-Chancellor and the senior and junior proctors, and preceded by the mace of office.

Business opened with Lord Rayleigh's address of greeting. After formally welcoming the delegates, he claimed that Cambridge was not held so fast in the bonds of mediævalism as some supposed, for the University was prepared to accept the result of all investigations scientifically undertaken. Darwin, he contended, had made himself beloved by all who had known his character, and was admired by all who had even a spark of scientific fire. He hoped that one outcome of the centenary celebrations might be the founding of a School of Genetics, a subject closely connected with the work of Darwin and of his nephew, Dr. Francis Galton.

On the conclusion of the Chancellor's speech the presentation of addresses began, and the delegates as they came up were received by the audience with applause. Naturally enough, the members of the Darwin family present, Sir George Darwin, Dr. Francis Darwin, Mr. William Erasmus Darwin, and Major Leonard Darwin, were accorded an ovation. Among others receiving special recognition were Professor Bateson, Professor Seward, Professor E. van Beneden, Professor Svante Arrhenius, Professor Höffding, Professor Metchnikoff, Prince Roland Bonaparte, Professor de Vries, Marchese di San Giuliano, Dr. H. P. Keatinge, Sir Richard Solomon, Dr. T. G. Brodie, Sir Robert Stout, Dr. E. Rutherford, Professor A. Sedgwick, Sir Isambard Owen, Sir Archibald Geikie, Sir William Turner, and Professor James Cossar Ewart. The whole ceremony was a succession of brilliant military and diplomatic uniforms and academic robes. The Austrian delegates were in General's uniforms, being given this status by the Austrian Government as a privilege of their position.

The first of the four addresses was delivered by Professor Dr. O. HERTWIG, Director of the Anatomical Institute, Berlin. He pointed out that Darwin's views were more dominant in Germany than in any other country, and showed how they had been championed by Gegenbauer and Haeckel, and how they had formed the starting point for the researches of the younger men, such as Strasburger, Dohrn, and others. He concluded by stating that the Cambridge celebrations should be rightly the greatest of the celebrations throughout the world, for Darwin owed his introduction to science to the friends whom he found at Cambridge.

Professor METCHNIKOFF emphasised the importance of Darwin's theory on disease. Darwin had made possible the foundation of comparative pathology. The whole history of inflammation and of the principle of immunity was Darwinian. After referring to the evolution of resistant strains of bacteria, Professor Metchnikoff made the following statement about cancer: "Among the most difficult medical problems, that of malignant tumours occupies without doubt the first place. In the absence of clear bearings a directing idea is needed to guide one in so obscure a region. Biologists believed that cancers arose from certain aberrant cells detached from embryonic layers, and remaining latent years and decades for the propitious moment to develop in excess. By taking our stand on the theory of the evolution of organisms as formulated by Darwin, the hypothesis to which I have just referred must be rejected. It is well established that embryonic layers were proper to inferior animals as well as to vertebrates and man, and the invertebrates never show the presence of tumours other than those produced by agents acting from without. It is therefore very probable that the cancers of man are also due to some cause foreign to the human organism, in fact, to some virus. This," concluded Professor Metchnikoff, "is being searched for with avidity, but has not yet been found."

Professor OSBORN of New York referred to the influence that Cambridge has exerted on American thought through the Universities of Harvard, Yale, Princetown, and other universities. A son of Harvard had just succeeded a son of Yale as President of the United States, and thus extended the influence of Cambridge through the Universities. Referring to Darwin's work, he said: "The image rises of a perfected optical instrument in which all personal equation, aberration, and refraction are eliminated, and through which, as it were, we gaze with a new vision into the marvellous forms and processes of the living world. There were some," he continued, "impressed by Darwin's grandeur, who thought that they would never get nearer the secret of life than Darwin had done, but to accept this idea would mean the abandonment of the progressive leadership of Darwin himself." He concluded by stating that he and his colleagues wished to present to the University a bronze portrait of Charles Darwin that the undergraduates might have some impression of the rugged simplicity and intellectual grandeur of the man they in America revered and honoured.

Sir EDWIN RAY LANKESTER delivered an address on behalf of the naturalists of the Empire, and contended that the one thing most British naturalists would wish to proclaim without any qualification whatsoever would be that in their judgment, after 50 years of testing and examination, the theory of natural selection remained whole, sound, and convincing. No attempt to amend that theory had in any essential particular been successful. Referring to the theory of mutations, he reminded his hearers that the notion that variations were large and sudden had been present in Darwin's mind, but modern views which took this standpoint were not, the speaker considered, supported by sufficiently accurate and comprehensive experiments. The Mendelian experiments would have interested Charles Darwin, but they did not tend to call in question his theory of natural selection. Sir Edwin

Ray Lankester concluded by saying that while Darwin's work remained one of the chief glories of Cambridge all must feel proud of the essentially English character of the man.

Sir ARCHIBALD GEIKIE presented on behalf of the Royal Society a special copy of the Darwin medal, struck in gold. He reminded Lord Rayleigh that he had been secretary of the Royal Society when the idea first originated, and said that it was with the greatest pleasure that he asked him personally to hand it over to the University for its acceptance.

A garden party was held in Christ's College on Wednesday afternoon, which was well attended despite the threatening weather.

The banquet on Wednesday evening was given in the new schools, where covers were laid for 500. The Chancellor was in the chair, being supported by Lord Walsingham, the famous entomologist (High Steward of the University), the Duke of Northumberland, Sir Edward Fry, and the various distinguished delegates.

After the loyal toasts had been duly honoured, Mr. A. J. BALFOUR proposed the "Memory of Darwin." Having referred to his own admiration for Darwin, whom he coupled with those other Cambridge worthies, Newton, Young, Kelvin, Maxwell, and Stokes, he contended that the nineteenth century had borne the heat and burden of the day as far as science was concerned. Darwin's work, he said, was the intellectual heritage of every educated man, no matter what his trade or occupation, and Darwin would stand for all time as the man who had brought about a great and beneficent revolution. He was the Newton of his own broad line of research. He had made greater strides than any predecessor or successor in the study of life, and quite apart from the Origin of Species he had won the first place in the study of natural science. He possessed the skill of an investigator and the mind of a generaliser, and in each capacity had grasped the problems that needed solution. As a man he was never uncharitable or embittered and never ceased to represent fact as fact, despite the storm of obloquy to which his completely revolutionary conception of the world exposed him for years.

Professor SVANTE ARRHENIUS also spoke to the toast and referred to the antiquity of the idea of evolution and to the beginnings of it in the nineteenth century. The patience and impartiality of Darwin, however, had performed the epoch-making work, which extended in its construction over 30 years. He fully realised the far-reaching importance of his ideas, and applied them widely to problems including those of anthropology. The great intellectual revolution due to the introduction of evolution was the most important event in the development of the human mind since the political movement which began with the storming of the Bastille 120 years ago. In conclusion, Professor Arrhenius said: "Let me say that in thus venerating Darwin's memory all men of science regard him not only as an ideal man of science but as a man of science whose power and influence have been enhanced by his integrity and moral worth."

Mr. W. E. DARWIN gave his personal recollections of the great naturalist, his father. He had, he said, an abhorrence of oppression and cruelty, and especially of slavery. Politically he was a follower of John Stuart Mill and Gladstone. Referring to Darwin's neglect of poetry, he deprecated a popular misunderstanding that had tended to cast disrepute on the credit of natural science. He claimed that Charles Darwin could never have written either the closing chapters of the "Origin of Species," or a certain letter to his wife if he had not felt fully the poetry of the world and of life.

Professor E. B. POULTON proposed the toast of "Prosperity to the University of Cambridge," to which the Vice-Chancellor responded.

Later a reception was given at Pembroke College, of which the present Vice-Chancellor is Master.

On Thursday a Convocation for conferring honorary degrees was held and the Rede lecture was delivered by Sir Archibald Geikie, President of the Royal Society of London, the subject being "Darwin as a Biologist," while the afternoon was devoted to a garden party given at Trinity College by Mr. W. E. Darwin, Sir George and Lady Darwin, and other members of the Darwin family.

A lasting memorial has been issued by the Cambridge University Press in the form of a collection of essays called "Darwin and Modern Science," among the contributors to which are the most eminent writers on biology in various countries. The centenary celebration is a curious and striking reminder of the old saying, "Magna est veritas et prævalebit," for some 50 years ago Darwin's views were bitterly attacked, but, as in so many instances, that which was heresy is now orthodoxy, and the celebration this week held in the university of that other great thinker, Newton, is a worthy memorial of one who threw a light upon the dark places of organic life almost equal to that which Newton threw upon the mechanism of the universe.

Obituary.

FREDERICK NUTCOMBE HUME, M.R.C.S. ENG., L.R.C.P. LOND.

THE Metropolitan Asylums Board and the Territorial Forces have lost a valuable officer in the death of Mr. F. N. Hume on June 14th, aged 58 years. He was the third son of the Rev. C. N. Hume, who died just before becoming a centenarian, and was educated at Marlborough College, and then studied for a time at Wadham College, Oxford, until he diverted his attention from the classics to the pursuit of medicine. In 1871 he entered as a student at St. Thomas's Hospital and later became clinical assistant at the Victoria Park Hospital for Diseases of the Chest, obtaining his surgical qualification in 1876. A week later, with a few chosen friends, mostly from his own hospital, the young surgeon found himself at Belgrade and in another week, after surmounting the difficulties of red-tapeism, the small band of English surgeons were in the midst of the Turko-Servian campaign, treating the wounded upon the field, often under the enemy's fire. While so engaged they were absorbed by the National Aid Society, and Mr. Hume distinguished himself above his comrades by the rapidity with which he mastered colloquially the Servian language. At the end of the brief campaign he remained for some months to work in a Belgrade hospital, until lack of British funds caused it to be closed. In July, 1877, he was despatched by the Stafford House Committee to the Russo-Turkish war, and arrived in Turkey in time to witness the defeat of Raouf Pasha's army near Karabounar, and then to be present at the severe fighting of the Shipka Pass, when Suleiman Pasha was hurling the flower of the Turkish infantry against an impregnable position in the Balkans. By the official returns, which were certainly not overstated, 10,000 wounded Turks passed through the ambulance tents during those eventful days, and though there were many doctors on the Turkish side, Mr. Hume and two friends were alone in being capable of performing any surgical operations. When a lull took place in the fighting Mr. Hume retreated with the last of the wounded to some of the hospitals, which were then a seething mass of hospital gangrene, slightly in the rear of the position. But during the early days of 1878 he was back again at the front to take his part in the retreat of the Turkish troops across the Rhodope mountains, on the staff of Valentine Baker Pasha, whose successful defence is well known to military historians. The official report, written by the Stafford House Chief Commissioner of the Turkish army (Sir V. Barrington-Kennett), states: "I wish here to record the gallant conduct of Surgeon Hume, who, at great personal danger, rejoined his ambulance at Philippopolis by means of travelling along the railway line on a trolley at night, in close proximity to the enemy. He was carrying instructions and a considerable sum of money from Constantinople."

Mr. Hume settled down for some years in general practice in South Kensington, but was again employed by the National Aid Society, in the short Servo-Bulgarian war of 1885, after which he again acted as director of the English hospital in Belgrade. For his many services he received Turkish and Servian decorations and war medals. Soon after his return to England in 1886 he rejoined the service of the Metropolitan Asylums Board, for which he had already done some temporary work. After serving as assistant medical officer in the South-Eastern Hospital he became superintendent of the Northern Hospital, and eventually held a similar post in the North-Western Hospital, where he obtained the reputation of being one of the best administrators in the service of the board. For some years he was engaged in teaching the subject of fevers to medical students, a work which was very near his

heart. His chief contributions to medical literature are to be found in the reports of the Metropolitan Asylums Board. His latest public service was to become major in command of the Second London Division in the Royal Army Medical Corps (Territorial Forces), where many of the men under his orders were servants of his own board. He threw himself into these new duties with characteristic energy, and on the day before his death marched six miles with his detachment to Bisley, and while so doing felt for the first time the preliminary pains which caused him to suspect the presence of angina pectoris, and from this he died suddenly a few hours later, apparently in his sleep. He was beloved by his friends for many sterling qualities, admired by acquaintances for an exceptional charm of manner, and he now leaves to deplore his death a widow and two sons, both at Westminster School.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Charles B. Porter, Professor of Surgery in Harvard University.—Dr. Saint-Yves Ménard, member of the Paris Academy of Medicine.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held recently the following candidates were successful in the subjects indicated:—

SECOND EXAMINATION.

Human Anatomy and Physiology.—A. B. Appleton, Downing; T. E. Banister, B.A., Christ's; G. M. Chapman, Caius; S. S. Crosse and J. H. Cumming, B.A., Pembroke; H. J. M. Cursetjee, G. E. Dyas, B.A., and C. M. Forster, B.A., Caius; T. L. Hardy, B.A., H. Selwyn; G. D. Jameson, Pembroke; M. MacGregor, Caius; E. G. Martin, B.A., Trinity Hall; R. W. Meller, B.A., Trinity; O. G. Morgan, Clare; H. J. S. Morton, B.A., Pembroke; W. New and F. C. Newman, B.A., Downing; A. B. Paul, Christ's; H. S. Reed, B.A., Trinity; L. T. Rutherford, Clare; H. J. S. Shields, Jesus; W. J. D. Smyth, B.A., Pembroke; V. F. Soothill, Emmanuel; W. J. F. Symons, Sidney Sussex; B. S. Taylor, King's; W. F. Thompson, B.A., Pembroke; J. W. Tonks, Caius; and H. A. Williams, B.A., Emmanuel.

THIRD EXAMINATION.

Part I., Pharmacology and Pathology.—F. S. Adams, B.A., and W. B. G. Angus, B.A., Christ's; H. W. Barnes, B.A., Jesus; J. D. Barris, B.A., Caius; A. W. Bourne, B.A., Downing; R. Ellis, B.A., Catharine; C. L. Forde, B.A., Clare; A. H. Gosse, B.A., Caius; E. F. W. Grellier, Downing; A. E. Herman, B.A., King's; W. L. Johnson, B.A., Pembroke; J. L. Joyce, M.A., King's; I. W. Joynt, B.A., Emmanuel; H. McLean, B.A., Caius; A. B. Pavey-Smith, B.A., Clare; A. C. Roxburgh, B.A., Trinity; W. Shipton, B.A., Emmanuel; G. Sparrow, B.A., Caius; W. A. Stokes, B.A., Emmanuel; F. S. Tinker, B.A., Pembroke; J. van Schalkwijk, B.A., and F. H. Watson, B.A., Caius; A. J. Waugh, B.A., Pembroke; Ll. M. Weeks, B.A., Caius; and T. A. Weston, St. John's.

Part II., Surgery, Midwifery, and Medicine.—F. R. Armitage, B.A., Pembroke; R. R. Armstrong, B.A., Trinity; M. W. Baker, B.A., St. John's; A. Barker, B.A., and J. P. Buckley, M.A., Trinity; F. G. Caley, B.A., Pembroke; A. E. Carver, B.A., Caius; A. F. Comyn, B.A., Pembroke; K. Comyn, B.A., H. Selwyn; R. Cox, B.A., Caius; A. J. W. Cunningham, Trinity; H. E. T. Dawes, B.A., St. John's; B. Day, B.A., Caius; P. G. Pildes, B.A., Trinity; A. H. Habgood, B.A., Jesus; R. E. V. Hale, B.A., Caius; A. Hamilton, B.A., Christ's; W. Harmens, B.A., Trinity; C. B. Heald, B.A., Caius; E. H. V. Hodge, B.A., Clare; C. C. Holman, B.A., Caius; N. W. Jenkin, B.A., Christ's; F. H. Loster, B.A., Pembroke; R. H. Mawhood, B.A., Trinity; L. B. Perry, B.A., Queens'; A. V. Poyser, B.A., Magdalene; F. A. Roper, B.A., Trinity; A. L. Sachs, M.A., Pembroke; F. S. Scales, M.A., Jesus; C. F. Searle, B.A., Pembroke; E. T. Shann, B.A., Caius; H. E. S. Stiven, B.A., Trinity; L. B. C. Trotter, B.A., Clare; G. W. Twigg, B.A., Caius; G. B. Wainwright, B.A., and G. Walker, M.A., Trinity; J. Walker, B.A., Clare; B. Wallis, B.A., Trinity; and J. N. Wheeler, B.A., Christ's.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.—PART II.

Medicine.—Ralph T. St. J. Brooks, David Duff, Thomas A. Hughes, Eric J. Powell, Victor B. Kyle, George E. Craig, Frederick A. Anderson, John W. Flood, and Cecil P. Smyly.

DIPLOMA IN PUBLIC HEALTH.

Part I.—Charles D. Myles.
Part II.—Charles D. Myles and Dudley F. Torrens.

LITERARY INTELLIGENCE.—Dr. David Forsyth is shortly publishing with Mr. Murray a work on "Children in Health and Disease." The book is stated to present a complete scientific study of childhood, both normal and abnormal. After treating of the physiology and psychology of the normal child, the author deals with the health of children in elementary and public schools and with the principles on which the training and moral education of boys and girls should be founded. The State and municipal problems of infant mortality and of the idiot and feeble-minded population are discussed in detail. The concluding chapters are devoted to the various aspects of disease as affecting children.—Messrs. Shaw and Sons of Fetter-lane, London, E.C., announce the first number of a new medical journal entitled *Heart*, dealing exclusively with the circulatory system, to be issued early in July. The journal is edited by Dr. Thomas Lewis, aided in the selection of papers by Dr. W. H. Gaskell, Professor A. R. Cushny (London), Dr. J. Mackenzie (London), Professor A. W. Hewlett (Ann Arbor), and Professor G. N. Stewart (Cleveland), with the collaboration of other well-known physiologists and physicians. It is anticipated that the nature of the material with which the journal proposes to deal, and the standard of the work which it desires to record, will appeal to a large number of readers and contributors, and that those seeking new information with regard to the heart and blood-vessels will find it of special value. One of the main purposes which it wishes to serve is the assistance of workers upon circulatory problems, and those actively engaged in teaching. It will be issued, so far as possible, at regular quarterly intervals, and each volume will consist of four numbers. The subscription has been fixed at 20*s.* per volume, or 5*s.* 6*d.* per single number.—A brief study in the history of medicine is announced by the Oxford University Press. It is entitled "The Last Days of Charles II.," and the primary object of the author, Dr. Raymond Crawfurd, has been to establish the true cause of the monarch's death, which other historians have stated to be apoplexy.

THE twelfth annual dinner of the West London Hospital and Post-Graduate College was held on June 16th at the Trocadéro Restaurant, London, with Dr. Phineas S. Abraham in the chair. The toast of "The Imperial Forces" was proposed by Mr. J. G. Pardoe, and was responded to by Fleet-Surgeon W. H. S. Stalkartt, R.N., now attending the post-graduate course at the West London Hospital. Surgeon-General A. M. Branfoot, I.M.S., also replied, and referred to the benefits which officers of the Indian Medical Service derived from attending the College. The toast of "The Hospital and College" was proposed by the Chairman and acknowledged by Mr. G. F. Marshall for the hospital. Mr. L. A. Bidwell (Dean), in responding for the College, said that the Post-Graduate College was started in 1896, and since then about 1700 men had gone through its course of instruction, the entry of new post-graduates last year being 232. The object of the institution was to enable practitioners in the country and abroad to keep themselves abreast with advances in medicine and surgery by attending hospital practice for from one to three months. All the newest methods of treatment were in use at the West London Hospital, and practitioners by seeing these methods applied obtained practical instruction in the way of applying the various new curative agents. The post-graduate students came from all parts of the world, from every colony, and from many foreign countries. A large number of the officers of the Indian Medical Service spent their study furlough at the college, and nearly all the medical officers of the Royal Navy were sent there for their post-graduate courses. Dr. Seymour Taylor submitted the toast of "The Visitors and Kindred Colleges," which was replied to by Sir R. Havelock Charles and Dr. C. O. Hawthorne. Mr. C. R. B. Keetley gave "The Health of the Chairman," which was duly acknowledged by that gentleman.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.—The annual meeting of this association will take place on Tuesday, July 6th, at the Guildhall, London, when a conference of the Poor-law medical officers of England and Wales, to consider the recommendations of the Royal Commission on the Poor-laws and Relief of Distress will be opened by the Right Hon. the Lord Mayor in the Council Chamber at 11 A.M. The following papers will be read, with discussion after: (1) District Medical Officers and the Report of the Royal Commission, by Dr. Major Greenwood, district medical officer and public vaccinator, St. Leonard, Shoreditch; (2) Medical Relief and Public Assistance, Mr. C. S. Loch, secretary of the London Charity Organisation Society; (3) The Place of the District Medical Officer in a Unified County Medical Service, by Mrs. Sidney Webb;

(4) The Genesis of the Poor-law Infirmary, by Dr. F. S. Toogood, medical superintendent of the Lewisham Infirmary; and (5) The Public Health Aspect of the Report of the Royal Commission, by Dr. G. F. McCleary, medical officer of health of Hampstead. Three of the Royal Commissioners, Mr. Loch, Mrs. Webb, and the Rev. Prebendary Russell Wakefield, are to be at this conference, and it is hoped that as many of the Poor-law medical officers of the country as possible will endeavour to attend, so that the meeting may be representative of the whole service. The special business of the association will take place at 2 P.M., after which any matters postponed from the morning will be continued. The annual dinner will take place at the Waldorf Hotel, Aldwych, London, on the same evening, at 7 for 7.30 P.M., when Surgeon-General G. J. H. Evatt, C.B., the President of the association, will be in the chair. The price of the tickets is 7*s.* 6*d.*, not including wine. Any Poor-law medical officer wishing to be present is requested to communicate with the honorary secretary, Dr. Major Greenwood, 243, Hackney-road, London, N.E. Ladies are admissible among the guests. The Lord Mayor and Lady Mayoress have kindly invited Poor-law medical officers attending the conference to afternoon tea at the Mansion House between 3.30 and 6 P.M., the invitation to include ladies.

HOMES FOR INEBRIATES ASSOCIATION.—The report of this association, together with the twenty-fifth annual report of the Dalrymple House at Rickmansworth, prepared by the resident medical superintendent, Mr. F. S. D. Hogg, make interesting reading. Since the foundation of the retreat in 1883, 892 patients have been treated there, and a summary of statistics concerning them is appended. From this summary we learn that 401 patients have been admitted under the Act and 491 as private patients. Under the Act the majority of the inmates have been entered for 12 months and as private patients for three months. The ages of 420 of them have been between 30 and 40, and this we believe is about the age proportion that would have been anticipated. A large number of the patients (218) had no occupation, and among the remainder there were merchants, clerks, and medical practitioners. The medical man, more than the barrister, the solicitor, and the clergyman, seems to yield to the temptation of alcohol or of drugs, though the other professions are also represented. 601 are described as of nervous temperament, 796 had the associated habit of using tobacco, and 286 had had attacks of delirium tremens, one patient having had as many as 13. Spirits were the chief inebriant employed and an exaggerated sense of sociability was the exciting cause in 483 instances. The complicating diseases were, as would be expected, habitual constipation, general debility, and renal disease. Mr. Hogg calculates that during the ten years he has been in charge he has obtained the following results: doing well, about 64 per cent.; improved, about 16 per cent.; and not improved, about 20 per cent. Mr. Hogg states that he has as yet discovered no drug which can be substituted suddenly, with safety, for morphia; and as regards the treatment of the morphia habit by combretum, in the first four cases in which he tried the remedy the results were all that could be desired, but subsequent experience has proved that it is only in some cases that this drug is of service. The report is a business-like little record of good work.

MAITLAND SANATORIUM.—A meeting in support of the development of a working colony as an after-stage to the sanatorium treatment provided at Maitland Sanatorium, Peppard Common, Oxfordshire, was held recently at the town house of the Hon. W. F. D. Smith. Mr. Smith, in opening, said the committee asked for £10,000 to provide and partially endow the extra beds required. Sir Richard Douglas Powell said the strength of the cause of which he was privileged to speak on that afternoon lay in the fact that it was no new scheme requiring large outlay in bricks and mortar and secretary's salary, &c., before the first patient could be received, but a scheme already at work, organised seven years ago by Dr. Esther L. Carling and her friends, and which had been at work for the past seven years. Having got the patients into the sanatorium, he said, the difficulty arose how to deal with them so that when they came out from the sanatorium they should be useful members of society. He used to observe that a man went into a sanatorium a human being and came out more or less of a cabbage, or rather, in modern-day phraseology, a mollusc. A more recent system of sanatorium treatment had taken a step to improve that condition of things, to redeem the man or woman from the degenerating mental influences of a long system of treatment which used to consist of rest and over-feeding. The problem to consider after the patient had been in the sanatorium for a certain time, and the disease had perhaps been completely arrested, was what next to do for him. If this scheme was successful it might be possible to establish some sort of garden colony on the estate where some of these people could be retained for a longer time and enabled to do some work which would bring some result and yield them perhaps some small return. Such a scheme required much thought. If the public made up their minds that it was right to save these people then their duty went a little further and they must think how to help them afterwards. But at present many who went in very ill came out better but not able to face the strenuous labour of their previous calling. The cause had his most profound sympathy and he heartily trusted that it would be well supported. Dr. S. Davies, medical officer of health of Woolwich, detailed the experience of that borough in sending patients to the Maitland Sanatorium during the past seven years. He advocated the use of sanatoriums to municipal authorities as means of educational treatment, but considered that curative treatment was a matter for charity. He showed that the percentage of "economic recoveries" in Woolwich was 5 per cent. greater than that claimed in German statistics. Dr. Esther Carling said the sanatorium colony was needed to carry further the work of educational treatment which municipal authorities began. A children's wing and sanatorium school were also in immediate contemplation.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Medical Men and the Petrol Tax.

THE CHANCELLOR of the EXCHEQUER, according to present arrangements, will receive a deputation of medical men on July 1st in connexion with the taxation on the petrol used in motor-cars. Representatives are to be included in the deputation from the medical section of the Motor Union and from the British Medical Association. The case which they will submit to Mr. LLOYD GEORGE is that the petrol tax falls inequitably on medical men, who have to use motor-cars in order to reach their patients rapidly. It was thought for some time that the arrangements of the CHANCELLOR of the EXCHEQUER would not enable him to receive this deputation until a later stage in the session, but as the Finance Bill will not be taken on Thursday, July 1st, he has consented to meet it on that day.

The Transmission of Enteric Fever in the Army.

A memorandum by the Director-General of the Army Medical Service on the transmission of enteric fever by the "chronic carrier" has been presented to Parliament. The subject of "chronic carriers" of enteric fever in the army has several times recently been brought before the attention of the House of Commons by questions addressed to the Secretary of State for War with respect to seven men who have been under treatment at the Millbank Military Hospital. A good deal of misunderstanding existed on the question of "chronic carriers." Accordingly Mr. HALDANE obtained a memorandum from the Director-General of the Army Medical Service. It contains particulars as to the process adopted in the treatment of these men and also charts relating to the subject.

The Inebriate Acts in Scotland.

The report of the inspector for Scotland under the Inebriates Acts for the year 1908 shows that the decline of admissions to inebriate reformatories has continued, but the admissions to retreats have been slightly more than during the previous year. The admissions in the period under review numbered 94 in all. 75 were to retreats, 13 to certified reformatories, and 6 to the State reformatories. The discharges for the year amounted to 133. Of these, 87 were from retreats, 31 from certified reformatories, and 15 from the State reformatories.

Experiments on Living Animals.

The return on experiments on living animals during the year 1908 under licences under the Act 39 and 40 Vict. c. 77 is now available as a Parliamentary paper. Mr. G. D. THANE, the inspector, in his report states that during the year 1908 the total number of licensees under the Act was 453, but 126 of them performed no experiments. The number of experiments other than those of the nature of simple inoculations, hypodermic injections, or similar proceedings was 2851. Of these 1452 were performed under licence alone. In this case the animal must

during the whole of the experiment be under the influence of some anæsthetic of sufficient power to prevent it feeling pain, and the animal must, if the pain is likely to continue after the effect of the anæsthetic has ceased, or if any serious injury has been inflicted, be killed before it recovers from the influence of the anæsthetic. The use of anæsthetics is also required under several of the special certificates. Inoculations, hypodermic injections, and some few other proceedings performed without anæsthetics are responsible for 85,783 experiments. The total number of experiments on animals for the year 1908 is thus 88,634, being 15,280 more than in 1907. Mr. THANE describes in detail the nature of the experiments and points out that a very large number of them are painless. He states that in the event of pain ensuing as a result of the inoculation, a condition attached to the licence requires that the animal shall be killed under anæsthetics as soon as the main result of the experiment has been attained. Dr. THANE adds that the usual inspections of registered places were made by Sir James Russell and himself. They saw numerous animals under experiment and found the licensees attentive to the requirements of the Act, as well as to the conditions appended to their licences by the Secretary of State. The irregularities which had occurred during the year were few, and all arose from misunderstanding or inadvertence with respect to the extent or application of certificates. By direction of the Secretary of State a suitable admonition was addressed to each of these licensees.

A separate report is made in respect to Ireland by Mr. W. THORNLEY STOKER, the inspector. 20 licences were in force in that country during the year under review, and the experiments performed were 390 in number. The inspector states that the work done in Ireland under the Act was, in his opinion, free from abuse and was sincere and well-intentioned. He attributes the increase in the number of licensees and their experiments to the study of new investigations and treatments of disease by means of antitoxins, sera, and vaccines.

Anæsthetics Bill.

Mr. COOPER on June 22nd introduced his Bill to regulate the administration of anæsthetics. It was read a first time.

Nurses' Registration.

One of the obstacles in the way of Bills dealing with the question of the Registration of Nurses has been the fact that rival schemes were in the field. A conference has been arranged between representatives of the organisations interested in the various projects with a view to reconcile points of difference.

Colouring Matter in Margarine.

The Sale of Margarine Bill, which has this week been under the consideration of a Standing Committee of the House of Commons, seeks to prevent the use of colouring matter in margarine so as to give it the appearance of butter. The promoters of the Bill, to which considerable opposition has developed, allege that extensive frauds are being carried out by which margarine is being sold as butter.

Glasgow Hospital for Diseases of the Skin.

The Glasgow Hospital for Diseases of the Skin Order Confirmation Bill has passed through all its stages in the House of Commons.

HOUSE OF COMMONS.

THURSDAY, JUNE 17TH.

The Campaign Against Mosquitoes at Cairo.

Mr. RAMSAY MACDONALD asked the Secretary of State for Foreign Affairs whether, early in 1907, under the supervision of Mr. Hugh C. Ross, steps were taken to extirpate malaria-breeding mosquitoes from the district of Ghezireh, in Cairo; whether, after Mr. Ross's resignation, there were frequent changes of the Europeans who were in charge of the work; whether it was ultimately placed under the supervision of a native cab-driver, who had been coachman to the late adviser to the Minister of the Interior; whether, as a result, the campaign collapsed after the rising of the Nile last October; whether the Foreign Office was aware of any complaints being made that the malarial staff in Cairo was now altogether insufficient for its work; and whether, in view of the results obtained under Mr. Ross's supervision and of the importance of this work to the health of the city, the Egyptian Government would be communicated with on the subject.—Sir EDWARD GREY replied: Mr. H. C. Ross was instructed in December, 1906, to take measures for the destruction of malaria-breeding mosquitoes in part of Cairo, and shortly afterwards at Heluan and in other quarters of Cairo. I am aware that, after Mr. Ross's resignation, the post which he had filled was given to an officer of the Royal Army Medical Corps, but I have no information as to whether any other European was afterwards appointed to it. The latest information in my possession relates to the month of June, 1908, and is to the effect that at that time the work at Heluan was being very efficiently supervised by a native employee. I have no information as to the collapse of the campaign beyond a statement made by Mr. Ross in a letter to *The Times* that a report to that effect had reached him, nor have I heard any complaints as to the insufficiency of the staff employed on this work in Cairo. I have no reason to doubt that the Egyptian Government are continuing to use their best efforts to stamp out malaria, and I therefore see no necessity for the interference of His Majesty's Government in the matter.

The Indian Medical Service.

Mr. KETTLE asked the Under Secretary of State for India whether, in pursuance of the scheme of reform outlined in the paper lately presented to Parliament, Indian medical men, not belonging to the Indian Medical Service, would be appointed to such posts as those of surgeon-general, professor in the medical colleges, physician or surgeon in Government hospitals, chemical examiner, sanitary commissioner, and the like, or whether it was proposed to appoint native Indians only to posts of minor importance.—Mr. HOBHOUSE answered: The title of surgeon-general implies membership of the Indian Medical Service; as regards the other classes of posts mentioned, the honourable Member will see from the published correspondence to which he refers that the policy laid down by the Secretary of State contemplates a gradual extension, without restriction as to posts, of the employment of civil medical practitioners recruited in India. The extent to which this policy can be carried into effect and the particular posts to which it can be applied must necessarily depend largely on the qualifications found in the independent medical profession from which it is intended that vacancies shall be filled.

Enteric Fever in King's County.

Mr. REDDY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that an outbreak of fever has recently taken place in Clonfanlough, Ferbane, dispensary district, King's County, and that up to the present four deaths had occurred; would he state what time elapsed between the date of notification by the Member for the division and the arrival of the inspector on the scene; whether he was aware that the spread of fever was due to the fact that not until after a fatal case did the people find out that fever was the cause of death; and, seeing that this had been the second outbreak in this district, would he grant a sworn inquiry into this matter in order to give confidence to the people who were terror-stricken.—Mr. BIRRELL said in reply: I am informed by the Local Government Board that there were 16 cases of enteric fever last month at the place mentioned, but the Board does not know the exact number of deaths which have occurred. I understand that the honourable Member communicated with the Board on May 25th and that the medical inspector visited the district on May 28th. The first recognised case of the series was seen by the medical officer of health on May 15th when he suspected the water-supply to be the source of infection and a sample of water sent for analysis has been found to be polluted. The medical officer appears to the Board to have taken all reasonable precautions in connexion with the outbreak, which is now probably at an end, as no case is reported to have occurred since May 26th. The Board has brought the sanitary requirements of the locality under the notice of the district council and has urged it to provide a proper water-supply. There is nothing in the case calling for a sworn inquiry.

Mr. REDDY: Is the right honourable gentleman aware from the date of my telegram until the inspector appeared on the scene there was an interval of over eight days, and will he say that he has done his duty to the inhabitants of the place by leaving them in a fix all that time?

Mr. BIRRELL: I understand that the honourable Member communicated with the Board on May 25th, and that the medical inspector visited the district within three days.

Mr. REDDY: That was when I wrote the second time.

Newspapers and Coroners' Inquests.

Mr. CURRAN asked the Secretary of State for the Home Department whether he would consider the desirability of introducing legislation requiring notice to be given to local newspapers of the holding of coroners' inquests and providing a right of attendance to the public at such inquests.—Mr. GLADSTONE answered: The suggestion will be referred to the committee now inquiring into the law and practice of coroners' inquests.

A Shoreditch Inquest.

Mr. TALBOT asked the President of the Local Government Board whether his attention had been called to an inquest on an infant at Shoreditch, where the evidence of the medical man showed that there was no food in the child's stomach and that the child had not been properly fed for a long time; whether he was aware that it was alleged that the relieving officer had refused milk for the child when the father, who stated that he was out of work, applied for it; whether he would make inquiry into the case; whether he was aware that in the above case the relieving officer said in his defence that he believed that the father was at work; and whether, in view of Mr. Justice Hawkins's decision in Reg. *v.* Curtis (15 Cox C.C. 746) that a necessitous child was entitled to medical help although the father was at work, the Local Government Board would issue a circular to guardians and relieving officers explaining their duties to children in such cases.—Mr. BURNS wrote in reply: My attention has been called to the case referred to. I find that a committee of the guardians has investigated the matter, and I have been furnished with a copy of their report. Conflicting statements appear to have been made before the committee by the parents and the relieving officer respectively, and the committee found themselves unable to arrive at any definite conclusion. I am making further inquiry with respect to the case.

Local Government Board Administration.

The House went into Committee of Supply on Civil Service Estimates, Mr. EMMOTT in the chair.

On the vote of £169,294 for salaries and expenses at the Local Government Board,

Lord EDMUND TALBOT as an amendment moved the reduction of the vote by £100 in order to call attention to the maintenance of children in workhouses.

Mr. MACLEAN asked what had been done to secure suitable sanitary accommodation at the large exhibitions to which the public resorted. He called attention to the desirability of keeping separate the different categories of women who resorted to the maternity department of Poor-law hospitals.

Mr. G. P. GOOCH hoped that a further inquiry would be made into the statistics of infant mortality in workhouses.

Mr. J. W. WILSON (Worcestershire) asked the President of the Local Government Board whether he could not in some way, by circular or pamphlet, issue advice to his officers and to local authorities to ensure the spread of some elementary knowledge of precautions which ought to be taken when tuberculosis broke out in a family.

Mr. KILBRIDE drew attention to fraudulent trading in butter and margarine, and regretted that the Local Government Board had not taken greater care in conjunction with the Board of Agriculture to protect the public in this direction.

Mr. JOHN BURNS (replying to the debate) said that he was fortunately in a position to deal sympathetically in the main with the questions which had been raised with regard to Poor-law children. There were in England 230,000 children wholly or partly supported by rates in and outside Poor-law institutions. Of these children 70,000 were in

cottage homes, barrack schools, scattered homes, district schools, and workhouses and infirmaries. A child in a district school cost from 10s. to 13s. 7d. per week; in a barrack school from 10s. 4d. to 18s. 8d.; in a cottage home from 12s. 9d. to 25s. 2d.; and in a scattered home from 8s. 6d. to 11s. 2d. He mentioned those figures to show that so far as money was concerned the public benevolence towards the children dependent upon the State was larger and more generous than in any other country in the world. In London 50 per cent. of the "indoor" poor were in specialised institutions, and it had been brought to his attention that 40 per cent. of all the deaths in London took place in public institutions of some kind. From that fact a number of superficial people had deduced a totally wrong theory. Instead of this being taken as a sign of decadence on the part of the community he considered it as being an unmistakable sign of increasing intelligence on the part of the poor themselves by anticipating disease, and when the disease from which they were threatened broke out instead of going to the twopenny or threepenny dispensary doctor they went to these institutions and got the best attention that they possibly could, from the most skilled experts in the various complaints from which they suffered. It had been pressed upon him that afternoon that by taking action on the reports of the Poor-law Commission, the Government, and especially the Local Government Board, might do a great deal by administration. He was delighted to hear so much unanimity upon that point, because when he ventured the other day to suggest hypothetically that nearly all the problems with which that report dealt should be remitted to the Local Government Board he heard suggestions of bureaucracy, and his honourable friend (Mr. Masterman) and he (Mr. Burns) were regarded as oligarchs who wanted to supersede the power of Parliament in settling Poor-law problems. There was much which could be done by administration, and so far as sick children were concerned let him give an illustration. London had 2500 sick children in its workhouses and infirmaries. He and his department were so impressed that this was wrong that they applied to the Metropolitan Asylums Board for an absolutely new institution, which was not being used, which cost £200,000, and which was situated on the breezy downs of Surrey at Carshalton. It was decided to acquire that institution. He was glad to say that 1000 of the 2500 sick children had been transferred from the workhouses and infirmaries into this special institution where the children would be better treated, he believed, at a cheaper cost, because they would recover more quickly at Carshalton than in the workhouses from which they had been taken. If there were any other local authorities who had a similar institution to place at his disposal, he should be glad to take over one, two, or even three more, and he should not rest content until the whole of the sick children in London workhouses and infirmaries, and also in the provinces, were transferred to institutions in which they could be better cared for than they could be in those institutions, however good they might be. Having dealt with the subject of boarded-out children, he said that he proposed to issue an Order to bring the children within the union under the inspection of the Local Government Board inspectors. The community should make the best of the institutions which it had, but it should get rid of institutional life as rapidly as possible. Another question had been raised by the honourable Member for Bath (Mr. Maclean)—the condition of public exhibitions from the point of view of sanitary accommodation. The attention of the Local Government Board was very properly called to the condition of the Franco-British Exhibition last year, in its sanitary aspect, for the enormous number of people who went there every day and for the staffs who had to minister to their enjoyment. He had promised the honourable Member that he would take action. It was not necessary for the Home Secretary to interfere. Proposals were brought before the authorities of the exhibition and before it closed the situation was considerably relieved. Between the close of the exhibition last year and the present time, he had satisfied himself that the necessary steps had been taken, and at this moment 131 public comfort places had been provided for both sexes. The point had been raised in the debate that so much having been done for the children in the Poor-law schools, it would surely be inconsistent to neglect the larger number of children who were receiving out-door relief. There was something in that point. Honourable members would be pleased to know that the Local Government Board had decided that, so far as the recipients of out-door relief were concerned, the Board would follow up the Tuberculosis notice issued in last January. He ventured to say that fifty years hence the Local Government Board would be credited, for having issued the Tuberculosis Order, with having done a great deal to mitigate the spread of the disease and a great deal for public health. By that Order and by regulations and by bringing children within the purview of attention, he believed a great deal would be done to diminish tuberculosis and other diseases. The right honourable gentleman went on to say that the Notification of Births Act had been adopted by 140 towns and boroughs. The Registrar-General said that 84 large towns had adopted it, and that of the 140 which had altogether adopted it, 18 were metropolitan boroughs. The City of London had adopted it, and he was pressing the remainder of the metropolitan boroughs to adopt it. If they did not do so he should have to take steps to force them, but he sincerely hoped that such a course would not be necessary. There had not been sufficient experience of the Act to enable him to give statistical details, but he was convinced that the Notification of Births Act and the regulations dealing with tuberculosis and those relating to outdoor relief would do a great deal of good towards stopping some of the worst diseases. It had been suggested that in addition to what was being done to meet the ravages of tuberculosis, the Local Government Board should issue more circulars. It had sent out several memoranda which had been issued to all sanitary authorities. If it was necessary to extend the system of education to all local authorities he would consider the best way in which that could be done. That brought him to another point which had been raised by several members, and it related to the question of infant mortality. The committee would be pleased to know that the general infant mortality of the whole country had shown a direction downward. The rate had fallen from 140 or 150 to 113 throughout the whole country. He believed that the steps which had been taken through the Notification of Births Act would tend still more to the rapid diminution of infant mortality. Unfortunately, in some of the midland and northern towns, where, in his judgment, too many married women went to work under conditions and at a time when they ought to be at home, and frequently resumed work when they should be nourishing themselves and sustaining their children by natural means, the infant mortality was still too high. That aspect of infant mortality had not been raised that afternoon. What had been raised had been the infant mortality with which the Local Government Board could deal, and both the honourable Members for Bath (Mr. Maclean and Mr. Gooch) would be pleased to know that the infant mortality with which they had dealt—viz., the infant mortality in workhouses and infirmaries—was being dealt with. The medical department of the Board was going to follow up the excellent report on Public Health and Social Conditions which had recently been issued, and intended to produce a special report on infant mortality viewed from several aspects which had not been dealt with in the past. That inquiry was now going on and the excellent books which had recently been published would be supplemented by a special report on the investigation into infant mortality. He sincerely trusted, as far as that was concerned, the investigation and the report would satisfy the honourable Members. It was only fair that he should deal with one suggestion made by one honourable Member, and that was as to the death-rate that happened occasionally—he admitted too frequently—in some of the worst districts in the workhouses and maternity wards and infirmaries. It was only right that honourable Members should temper their reception of certain allegations made recently in various newspapers by a knowledge of facts and circumstances as to the death-rate of infants born, often to women who had been cruelly treated and beaten, overworked, and badly cared for, before they came into the workhouse, and very often absolutely in the process or immediately before the act of childbirth itself. It stood to reason that a child whose father and mother were living under these bad conditions could not be expected to live, or if it lived, to be as strong as children differently placed. Where 60 per cent. or 70 per cent. of the women who were in the maternity wards in London and workhouses were illegitimate mothers, as against only 4 per cent. of illegitimate mothers outside, it stood to reason that the children who were the offspring of such women could not expect to live, or if they lived, to be as strong as the children of legitimate parents. The honourable Member for Merthyr Tydvil (Mr. Keir Hardie) shook his head at that statement. Did the honourable gentleman agree with Savage the poet, who himself was illegitimate, that illegitimate children were the sickly fruit of fond compliance? No, he could not. Did the honourable Member take the converse view that illegitimate children, according to the same poet, were stamped in the mint of nature's glowing ecstasy? Certainly not. What were the facts? The facts were that illegitimacy not only connoted moral delinquency, but also indicated physical degeneracy.

Mr. JOHN WARD: Nonsense.

Mr. BURNS: If honourable Members will do me the honour of going with me to some of the maternity wards in London workhouses and see poor children, the offspring of illegitimate mothers, they will see how disease, lack of food, overwork, and brutal treatment have destroyed the power and capacity of the illegitimate child to resist disease. They would see how very difficult it was to rear illegitimate children born under such conditions, and that was proved by the fact that the extent to which workhouse mortality amongst infants was greater than outside was apparent only in the first week, because after the first week, when good treatment, good food, good nursing, and regular medical attention were always available, the child got into a healthier condition and improved very rapidly. The Local Government Board was giving further attention, as far as it possibly could, to this matter, and he was convinced that the mortality of children outside workhouses and inside them would never be materially reduced until the pre-natal conditions of the child, the conditions of the mother long before the child's birth, were enormously improved; and it was the business of every employer of labour, of every husband and wife, and of every department and authority concerned in the future of the race, to see that the pre-natal conditions of the child were vastly improved, and that the mother while carrying the child should be relieved from brutality and overwork, conditions which left on the child an impress for long years after it had left either the home, the workhouse, or the infirmary. The right honourable gentleman also dealt with the question of the adulteration of butter. He said that the Butter and Margarine Act of 1907 would be administered principally by the Board of Agriculture and Fisheries, but under it certain powers were given to officers of the Local Government Board. If honourable Members turned to the last report on this subject they would find that in 1907 93,716 samples were taken in England and Wales, and the great bulk of them were for butter, milk, or margarine. In 1908 the number of samples had increased to 95,249. In Scotland 8576 samples were taken in 1907 and 8327 in 1908. In all the United Kingdom it was safe to say that over 100,000 samples were taken. Prosecutions had been entered upon, and in many cases very heavy fines, and in one or two cases imprisonment, had been meted out to those guilty of palming off upon both rich and poor food other than what food really ought to be. The Local Government Board incurred a great deal of unpopularity and had very great difficulty in getting the Food Regulations Act through a year ago to give wider powers to stop the sale of unsound food. Honourable Members could rest assured that he was anxious to protect the food of the poor. If the honourable Member (Mr. Kilbride) would only take the trouble to look at the reports of the Local Government Board and the Board of Agriculture and see the enormous number of prosecutions, he would find that his (Mr. Burns's) department was not at all anxious to allow the man who "fobs off" on the poor margarine for butter, or what was equally bad, rancid instead of fresh butter, to escape. There was no present local or administrative power which the Local Government Board now had that it would not be willing to exercise to the fullest to prevent under the Food and Drugs Act, the Butter and Margarine Act, and the Food Regulations Act either adulterated or impure food being sold. The right honourable gentleman further stated in regard to vaccination that in 1905, 4 per cent. of the children born were exempted; in 1906, 5 per cent.; and in 1907, 6 per cent. Mainly as the result of the Act which he piloted through the House two years ago the 6 per cent. of 1907 was raised last year to 17·2 per cent.

The amendment having been withdrawn, the vote was agreed to.

MONDAY, JUNE 21ST.

The Water-supply of Vatersay.

Mr. COCHRANE asked the Lord Advocate whether his attention had been drawn to the reports of the medical officer of health and the county sanitary inspector for Inverness-shire condemning the water-supply of Vatersay as being insufficient for 60 crofter families and liable to serious contamination; and what steps the Congested Districts Board intended

to take to give to their proposed new settlers an adequate water-supply free from any risks to health.—Mr. URE replied: I am aware of the report in question. The Congested Districts Board have also obtained reports from their expert advisers and have sanctioned an expenditure of about £400 on the works which are recommended to them, with a view to improving and safeguarding the water-supply of the island.

The Imports of Ether and Chloroform.

Mr. FELL asked the President of the Board of Trade how many gallons of collodion, ether, and chloroform were imported into this country last year; and what quantities of each were manufactured in this country in the same period.—Mr. CHURCHILL said, in reply: The total imports of these articles into the United Kingdom in 1908 were as follows: Collodion, 85 gallons; butyric ether, 341 gallons; and sulphuric ether, 397 gallons. The imports of acetic ether and chloroform are recorded by weight and amounted to 3207 pounds and 936 pounds respectively. There is no official information available with regard to the quantities manufactured in the United Kingdom.

TUESDAY, JUNE 22ND.

Fever in the Ferbane Dispensary District.

Mr. REDDY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he had any official information showing that the spread of fever in the Ferbane dispensary district was due to the incompetence of the medical officer in not properly diagnosing a case when first called to visit the patient, or to negligence in not warning the people of the nature of the case; and as this was the second occurrence of the kind in the district, would he cause a sworn inquiry to be held and thereby restore confidence in the minds of the people.—Mr. BIRRELL replied: The answer to the first part of the question is in the negative. In the opinion of the Local Government Board no blame attaches to the medical officer of health in connexion with this matter. The previous outbreak of fever in this district occurred some 15 years ago. I have already stated that there is nothing in the case calling for a sworn inquiry.

The Sale of Medicated Wines in Scotland.

Mr. WATT asked the Chancellor of the Exchequer whether his attention had been called to the fact that chemists in Scotland had to take out a licensed grocer's or off-licence, in order to sell medicated wines to the order of the medical profession, charitable institutions, infirmaries, and other like bodies; whether he was aware that the proposed increase of duty would bear hardly on these traders, making it necessary for them, in many cases, to relinquish that part of their business with inconvenience to the public; and whether he would grant to chemists a special licence to sell such medicaments.—Mr. HOBHOUSE (on behalf of Mr. LLOYD GEORGE) said in reply: Under the practice of the Board of Customs and Excise, wines sufficiently medicated to be regarded as medicines may be sold by registered chemists and druggists without a licence, provided that the directions as to dose, &c., on the label clearly indicate that the article is intended for use as a medicine and not as a beverage. The Chancellor of the Exchequer assumes, therefore, that the wines to which my honourable friend refers, though called medicated, are not sufficiently medicated to pass the official test of the Government Laboratory, and he does not think it would be desirable to lower the standard at present insisted upon.

The Inquiry into Malaria in Bombay.

Mr. RAMSAY MACDONALD asked the Under Secretary of State for India whether Captain A. G. McKendrick, I.M.S., who had been the expert adviser to a committee inquiring into malaria in Bombay, had been withdrawn and sent back to Coonoor; whether he would state why this had been done; whether anyone had been appointed to carry on Captain McKendrick's work in Bombay, and, if so, what were the special qualifications of the new officer; and what was his knowledge of Bombay itself.—Mr. HOBHOUSE (for Mr. BUCHANAN) replied: The Secretary of State understands that Captain McKendrick has been recalled to Coonoor in order to take charge of the Pasteur Institute there, of which he is assistant director. The director has been obliged to go on leave. It is not known who has been appointed by the Bombay Government to continue the inquiry on which Captain McKendrick was engaged.

BOOKS, ETC., RECEIVED.

ASH AND CO., LIMITED, London.

Guy's Hospital Nursing Guide, Handbook of Nurses' League, and Register of Nurses Trained at Guy's Hospital. Edited by the Matron. 1909. Price 1*s.* 6*d.*

BAILLIÈRE, J. B., ET FILS, Paris.

Les Actualités Médicales. Les Opsonines et la Thérapeutique opsonisante par les Vaccins de Wright. Par le Dr. René Gaultier. Price Fr. 1.50.

Bibliothèque de Thérapeutique. Publiée sous la Direction de A. Gilbert et P. Carnot. Physiothérapie. Electrothérapie. Par le Docteur Thomas Nogier. Price Fr. 10.

Radiumthérapie. Instrumentation, Technique, Traitement des Cancers, Chéloïdes, Nævi, Lupus, Prurits, Névrodermites, Eczémas; Applications Gynécologiques. Par le Dr. Louis Wickham et le Dr. Degrais. Préface de M. le Professeur Fournier. Price Fr. 18.

BAILLIÈRE, TINDALL, AND COX, London.

The After-Treatment of Operations. By P. Lockhart Mummery, F.R.C.S. Eng., B.A., M.B., B.C. Cantab. Third edition. Price 5*s.* net.

BLAKISTON'S SON (P.) AND CO., Philadelphia, U.S.A.

Experimental Pharmacology. A Laboratory Guide for the Study of the Physiological Action of Drugs. By Charles Wilson Greene, Ph.D. Third edition, revised. Price $1.00 net.

BRAUMÜLLER, WILHELM, Wien und Leipzig.

Vergiftungen. Klinischer Teil. Erste Hälfte: Allgemeines. Anorganische Gifte. Von Dr. Franz Erben. Mit Vorwort und zwei Beiträgen von Prof. Dr. R. v. Jaksch. (Handbuch der ärztlichen Sachverständigen-Tätigkeit. Herausgegeben von Professor Dr. Paul Dittrich. Siebenter Band, Erster Teil.) Price M. 12.

BRITISH OLYMPIC ASSOCIATION, London.

The Fourth Olympiad. Being the Official Report of the Olympic Games of 1908, celebrated in London under the Patronage of His Most Gracious Majesty King Edward VII. and by the Sanction of the International Olympic Committee. Drawn up by Theodore Andrea Cook and issued under the Authority of the British Olympic Council. Price not stated.

CASSELL AND CO., LIMITED, London.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.D. Cantab., F.R.C.P. Lond. Second Edition. Price 5*s.*

CHURCHILL, J. AND A., London.

Saint Thomas's Hospital Reports. New Series. Edited by Dr. H. G. Turney and Mr. W. H. Battle. Price 8*s.* 6*d.* net.

DARIEN PRESS, THE, Edinburgh.

A Handbook on Foreign Study. Compiled and edited by H. J. Darnton-Fraser. With an Introduction by the Right Hon. R. B. Haldane, K.C., M.P. Price 6*d.* net.

DOIN, OCTAVE, ET FILS, Paris.

Le Tabes et les Maladies Systématiques de la Moelle. Par le Docteur E. de Massary. (Encyclopédie Scientifique. Publiée sous la Direction du Dr. Toulouse). Price Fr. 5.

Traité de l'Alimentation et de la Nutrition à l'État Normal et Pathologique. Par le Dr. E. Maurel. Troisième Volume. Price Fr. 14.

FISCHER, GUSTAV, Jena.

Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Herausgegeben von Dr. J. Widmark. Zehntes Heft. Price M. 7.

Die Morphologie der Missbildungen des Menschen und der Tiere. Herausgegeben von Dr. Ernst Schwalbe. III. Teil. Die Einzelmissbildungen. Enthaltend, 1. Abteilung. Bearbeitet von E. Schwalbe und F. Kermauner. 2. Abteilung. Bearbeitet von E. von Hippel. Price M. 6.

Pathologische Anatomie. Herausgeben von L. Aschoff. Zwei Bände. Price, paper, M. 22.50; bound, M. 25.

Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Vierte Lieferung. Price M. 4.50.

Über die Rechtshändigkeit des Menschen. Von Prof. Dr. E. Gaupp. Price M. 1.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

Oxford Medical Publications. Aseptic Surgery. By Charles Barrett Lockwood, F.R.C.S. Third Edition. Price 5*s.* net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

A Practical Treatise on Disease in Children. By Eustace Smith, M.D. Third edition. Price 21*s.* net.

GRIFFIN, CHARLES, AND COMPANY, LIMITED, London.

Foods: Their Composition and Analysis. A Manual for the Use of Analytical Chemists and Others. By Alexanter Wynter Blyth, M.R.C.S., F.I.C., F.C.S., &c., and Meredith Wynter Blyth, B.A. Cantab., B.Sc. Lond., F.I.C., F.C.S., &c. Sixth edition, thoroughly revised, enlarged, and rewritten. Price 21*s.*

HAYEZ, IMPRIMEUR DES ACADÉMIES ROYALES DE BELGIQUE, Bruxelles.

Deuxième Congrès de la Société Internationale de Chirurgie. Bruxelles, 21–25, Septembre, 1908. Vol. I. Procès-verbaux et Discussions. Vol. II. Rapports. Publiés par les Docteurs A. Depage et L. Mayer. Price not stated.

HIRSCHWALD, AUGUST, Berlin.

Abwasserbeseitigung von Gewerben und gewerbereichen Städten unter hauptsächlicher Berücksichtigung Englands. Von Dr.-Ing. Albert Schiele. Price M. 24.

KARGER, S., Berlin.

Die Erkennung des Schwachsinns im Kindesalter. Von Prof. Dr. Th. Ziehen. Price Pf. 60.

Abhandlungen aus dem Gebiete der Geburtshilfe und Gynaekologie. Mitteilungen aus der Zweiten Frauenklinik der Kongl. Ung. Universität zu Budapest. Herausgegeben von Prof. Dr. W. Tauffer. Band I., Heft. I. Price M. 6.

Lehrbuch der Magenkrankheiten für Aerzte und Studierende. Von Dr. Hans Elsner. Price M.12.

KIMPTON, HENRY, London.

Practical Text-book of Midwifery for Nurses. By Robert Jardine, M.D. Edin., M.R.C.S. Eng., F.F.P. & S. Glasg., F.R.S. Edin. Fourth edition. Price 5*s.* net.

KLINKHARDT, Dr. WERNER, Leipzig.

Jahresbericht über die Fortschritte der Inneren Medizin im in-und Auslande. Begründet von Geh. Medizinalrat Prof. Dr. Ebstein, Göttingen. Redaktion: Dr. Schreiber und Dr. Rigler. Bericht über die Jahre 1902 und 1903. I. Band. Price M.29.

LANE, JOHN, London. (JOHN LANE COMPANY, New York.)

The Making of Species. By Douglas Dewar, B.A. Cantab., I.C.S., F.Z.S., and Frank Finn, B.A. Oxon., F.Z.S., M.B.O.U. Price 7*s.* 6*d.*

LIPPINCOTT (J. B.) COMPANY, London.

The Principles of Clinical Pathology. By Dr. Ludolf Krehl Authorised Translation from the Fourth German Edition by Albion Walter Hewlett, M.D. With an Introduction by William Osler, M.D. Second Edition. Price 21*s.* net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.

The Fundamental Principles of Chemistry. An Introduction to all Text-books of Chemistry. By Wilhelm Ostwald. Authorised Translation by Harry W. Morse. Price 7*s.* 6*d.* net.

MACMILLAN AND CO., LIMITED, London.

A System of Medicine. By Many Writers. Edited by Sir Clifford Allbutt, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., and Humphry Davy Rolleston, M.A., M.D., F.R.C.P. Volume V., Diseases of the Respiratory System. Disorders of the Blood. Price 25s. net.

The Cambridge Natural History. Edited by S. F. Harmer, Sc.D., F.R.S., and A. E. Shipley, M.A. Volume IV. Crustacea and Arachnids. By Geoffrey Smith, M.A., the late W. F. R. Weldon, M.A., Henry Woods, M.A., A. E. Shipley, M.A., F.R.S., Cecil Warburton, M.A., and D'Arcy W. Thompson, C.B., M.A. Price 17s. net.

MACMILLAN COMPANY, THE, New York. (MACMILLAN AND CO., LIMITED, London.)

The Elements of Hygiene. For Schools. Compiled by Isabel McIsaac. Price 3s. 6d.

MARLBOROUGH, E., AND Co., London.

Persian Self-Taught. By Shayk Hasan. Price, wrapper, 2s.; cloth, 2s. 6d.

MASSON ET CIE, Paris.

Clinique Hydrologique. Par les Docteurs F. Baraduc, Félix Bernard, M. E. Binet, J. Cottet, L. Furet, A. Piatot, G. Sersiron, Cl. Simon et F. Tardif. Price Fr. 7.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ALLAN, JAMES W., M.B., C.M., has been appointed Resident Medical Officer at the Bellefield Sanatorium, Lanark.

BAYLY, HUGH W., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Pathologist to the London Lock Hospital.

BLOMFIELD, S. B., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Robertsbridge District of the county of Sussex.

CROWLEY, R. H., M.D. Lond., M.R.C.P. Lond., has been appointed Assistant Medical Officer to the Board of Education.

HICKMAN, R., M.R.C.S., L.S.A., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newbury District of the county of Berks.

KANE, T. A. B., M.D. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Spennymoor District of the county of Durham.

MORRIS, S. H., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cleator District of the county of Cumberland.

SANSOM, W., M.D. Edin., has been appointed Assistant Honorary Surgeon to the North Lonsdale Hospital, Barrow-in-Furness.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN, UNIVERSITY OF.—Examiners in Anatomy and Physiology.

BETHLEM HOSPITAL.—Resident House Physician, unmarried, for six months. Salary £25 per quarter, with apartments, board, and washing.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BIRMINGHAM, KING'S NORTON WORKHOUSE AND INFIRMARY, Selly Oak.—Medical Officer. Salary £400 per annum.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary at rate of £80 per annum, with board, lodging, and washing.

CAIRO, EGYPT, SCHOOL OF MEDICINE.—Professor of Anatomy. Salary £800 per annum, with pension rights.

CANTERBURY BOROUGH ASYLUM. Canterbury.—Assistant Medical Officer, unmarried. Salary £140 per annum, with board, lodging, washing, and attendance.

CHELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge of the Branch Dispensary. Salary £80 per annum, with board and lodging.

CHESTER, CITY AND COUNTY.—Medical Officer of Health. Salary £500 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician. Salary at rate of £75 per annum, with board, residence, laundry, &c.

EDINBURGH, UNIVERSITY OF.—Professor of Surgery.

FIFE AND KINROSS SCHOOL BOARDS.—Four male and one female School Medical Inspectors. Salary of former £250, and of latter £200 per annum.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with residence, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board and residence. Also Locum Tenens Bacteriologist and Pathologist. Salary £3 3s. per week.

HULL, ROYAL INFIRMARY.—Honorary Ophthalmic Surgeon.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

LEEDS, UNIVERSITY OF, FACULTY OF MEDICINE.—Demonstrator of Physiology. Salary £150 per annum.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON).—Assistant Demonstrator of Anatomy. Salary £90 per annum.

LONDON LOCK HOSPITAL, Harrow-road, W., and 91, Dean-street, Soho.—Registrar.

MANCHESTER, UNIVERSITY OF.—Junior Demonstrator in Physiology. Salary £100 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Junior Resident Medical Officer at Hampstead. Salary £50 per annum, with board and residence. Also Assistant Resident Medical Officer at Northwood. Salary £50 per annum, with board and residence.

NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Surgeon for Diseases of the Ear and Throat.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Third Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £120 per annum, with residence, board, and washing.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon for six months. Salary £50 per annum, with board, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, rations, and allowances.

STOKE-ON-TRENT, INFECTIOUS DISEASES HOSPITAL, Bucknall.—Resident Assistant Medical Officer (female). Salary £100 per annum, with apartments, board, washing, and attendance.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

TIVERTON, DEVONSHIRE, INFIRMARY AND DISPENSARY.—House Surgeon and Dispenser. Salary £80 and all found.

WALLINGFORD, BERKS COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, attendance, &c.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE, Hammersmith-road, W.—Clinical Assistants. Also Three Casualty Officers.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c.

WESTMINSTER HOSPITAL, opposite Westminster Abbey.—Assistant House Physician for two months. Board provided.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician, unmarried. Salary £65 per annum, with board, residence, &c.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £80 per annum, with apartments, board, and laundry.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Clacton-on-Sea, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

HUNTER.—On June 18th, at Urquhart Lodge, Brading, I.W., the wife of Mark O. Hunter, M.R.C.S., &c., of a son.

SMITH.—On June 16th, at Highdown, Hindhead, Surrey, the wife of Gilbert Smith, M.D., F.R.C.S., of a daughter.

MARRIAGES.

ILES—GREENWOOD PENNY.—On June 19th, at St. Peter's, Eaton-square, John Hyde Iles, M.B., to Gwendoline Sarah Greenwood, youngest daughter of the late Robert Greenwood Penny, of Nethergrove, High Bickington, N. Devon.

SANDILAND—HILL.—On June 19th, at St. James's Church, West Hampstead, Digby Sayer Sandiland, Medical Superintendent, St. George's Infirmary, South Kensington, M.R.C.S., L.R.C.P. Lond., elder son of A. H. Sandiland, M.R.C.S., L.R.C.P. Lond., of 137, Southgate-road, N., to Lola, only daughter of Chas. Hill, Esq., 15, Pandora-road, West Hampstead.

WOOD-SMITH—WILLET.—At Christ Church, Fulwood, Preston, Lancashire, on the 12th inst., by the Rev. E. Seymour Scott, Vicar, Algernon Wood-Smith, M.D., F.F.P.S.G., Harrogate, formerly of Glasgow, to Amy Catherine, youngest daughter of the late John Willet, M. Inst. C.E., Aberdeen.

DEATHS.

BAKER.—On June 10th, at the Sleeping Sickness Camp, near Kisii, British East Africa, of malaria, Henry Hugh Baker, B.A., M.B., aged 31 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE HOSPICE ON THE ST. GOTHARD.

To those who think that the railway whistle sounded the death-knell of the Alpine hospice the present year and the past have given an effective answer. True, the wayfarer for whom the hospice was originally established has all but disappeared, as he finds a readier mode of access to his destination on either side of the Alps, and is shot through a tunnel instead of toiling laboriously up a narrow and winding pass. But his place has been taken by another class of pedestrian, the amateur mountaineer and the nature-student, for whom the pass and the peaks that dominate it have an ever-increasing attraction, and for whose convenience and comfort, ay, and for whose rescue and rehabilitation in case of casualty the hospice has its uses as of old. Such a place of shelter and refection as that of the Great or of the Little St. Bernard is as much in request as ever—the latter having become famous by the philanthropy and scientific attainments of its late director, the Abbé Chanoux; while the centre of nature study inaugurated last year by the Dowager Queen Margherita at a still higher altitude on the Pennine Range is but the prototype of others to be established with a similar object—"hospices," as they are called, "of science." In the month now passing the old hospice of the St. Gothard, after many vicissitudes, supposed to have finally lost its *raison d'être* by the opening of the tunnel between Airolo and Göschenen in 1882, is now re-established, in the interests, not of the wayfarer of the traditional type, so much as in those of the "Alpinista" and nature-student of all nationalities, attracted thither in quest of the picturesque or of the treasure-trove, mineralogical, botanical, and such like, of science. Originally founded in 1330 by Azzone Visconti, Duke of Milan, on the frontier of his state as a chapel in honour of San Gottardo, it served a useful purpose in 1431 as a place of shelter and entertainment for the prelates on their way from Italy to the Council of Basle. It had then become a "hospice" in the true sense of the word. By neglect and decay, however, it had long ceased to be utilised when Cardinal Federico Borromeo, Archbishop of Milan, re-established it *ab imis fundamentis* and made it a seat of the Order of the Oblate Brothers. From 1648 to 1682 it again lapsed into desuetude and ruin, till in 1683, with the coöperation of the Canton Uri, Cardinal Federico Visconti, also Archbishop of Milan, re-erected and rehabilitated it as an "Ospizio di Cappuccini," who so won over the surrounding population by good deeds and so ingratiated themselves with the travelling world by their hospitality that, what with gifts and bequests, the hospice became a wealthy institution. It was at the height of its influence and fame when in 1775 it was buried, chapel and all, by a tremendous avalanche. Again, after an interval of years, reconstructed and refurnished, it was finally burned to the ground—since when it has had to wait till the present year to rise, once more rebuilt and restored from its ashes. On its model, other tenements, similarly designed and appointed, will, ere long, spring up above the snow line, not only on the Helvetica and Italian, but on other Alpine mountain chains, to form welcome retreats to the artistic and scientific explorer or even, it is anticipated, to "the world's tired denizen," yearning for a season of respite and repose from the din and bustle of the hives of industry and business.

THE FUTURE POSITION OF "MONTHLY NURSES" UNDER THE MIDWIVES ACT.

ON behalf of the sanitary committee, Dr. R. Roberts, of Festiniog, presented a report to the Merioneth county council recently on the interpretation of the Midwives Act in relation to unqualified midwives. In order to have a trustworthy interpretation of the provisions he communicated with the secretary of the Central Midwives Board, stating that as a member of the supervising authority he had been asked to report and explain the position on and after April 1st, 1910, of the class of midwives so called who used to attend confinements. The impression had gone abroad that it would be illegal for them to render their services on and after that date in any capacity whatever as midwives. Hence, by refusing to go when summoned it was presumed a hardship would be inflicted on both the lying-in woman and the midwife. Of course, the Act was perfectly clear on the point that no unqualified person was to set herself up as a midwife in any guise, except under the supervision of a medical man. He wished to make it as clear and public as possible, whether the old class of midwives can act exactly as they used to act, provided they act only under the supervision of a medical man, and whether it would be legal for them to go to a case of childbirth to wait the medical man's arrival, and in the event of his not arriving before the case was over whether they can do whatever might be necessary in the absence of a medical man or qualified nurse. In his reply the secretary stated that while no uncertified woman may practise as a midwife after March 31st, 1910, there was nothing to prevent anyone acting as a monthly nurse under the direction of a qualified medical practitioner. The Board had always held that where a medical man was engaged to attend a case a midwife who was also engaged acts merely in the capacity of a nurse, even though she delivers the patient. This view of the case, however, was not universally accepted, and authorities held that anyone delivering a woman acted as a midwife, whether a medical man had been engaged or not. The inequalities in the number of certified midwives in the Welsh counties, the secretary added, were certainly remarkable. While Merioneth had 8, Denbigh had 63 and Montgomery 81. Referring to the scarcity of registered midwives in Merioneth, Dr. Roberts expressed the belief that it was due to the fact that medical men attended the midwifery cases throughout the county, more so than in colliery districts. In the slate-quarrying district of Festiniog it had been for many years, and still continued to be, the exception, not the rule, for midwives to attend cases except in conjunction with qualified medical men. After the Act of 1902 they had only one registered midwife in the parishes of Festiniog, Trawsfynydd, and Maentwrog for a population of about 14,000, and she would not attend a case except under the direction of a qualified medical practitioner. He had made inquiries of all medical men in the county, and the weight of their collective opinions went to show there was no real need or scope for many qualified nurses to practise, and there need be no apprehension of a sudden scarcity of the old class of midwives in consequence of the new provisions imposed on them. The general opinion of the medical profession was that maternity nurses would best meet the needs of the county, and that the county council should encourage their training to meet the growing demand for competent and intelligent nurses before, during, and after childbirth. The county council had already voted £20 towards the training of an applicant of limited means to qualify as a midwife; but it was a notable fact that only 4 registered women had notified their intention to practise this year as against 8 last year. The council had also voted a fee of 10s. 6d. to medical men for examining midwives in their districts.

A CRUSADE AGAINST FLIES.

To the Editor of THE LANCET.

SIR,—We came into this old house four years ago; it had been empty for some years previously and was infested by house-flies. We painted the window frames with crude petroleum perseveringly and have thus practically destroyed the flies. We now use saucers of formaldehyde 10 per cent. I shall be glad to give your correspondent further particulars. I am, Sir, yours faithfully,

Arncliffe Hall, Northallerton, June 21st, 1909. FLORENCE JOHNSON.

A VENDOR OF UNSOUND MEAT FINED £50.

A MAN named Rodgers of Merton-road, Wandsworth, was fined £50 by Alderman Sir Charles Wakefield at the Guildhall recently as the owner of six carcasses of pigs deposited for sale at the Central Meat Market where they had been condemned. The evidence showed that the dead animals were evidently tuberculous and that the glands had been removed from the throats of five of them. The defendant, who affirmed on oath his belief that the pork was sound, had to admit that he had taken out what he called the "kernels" from the throats, but he sought to explain this by saying that he thought they "had no business" there. He also said that he knew that if there was anything wrong with the meat it would be stopped at the market. The alderman who inflicted the fine mentioned, with the alternative of a month's imprisonment, probably summed up the situation accurately when he expressed the opinion that the defendant had had a strong suspicion that the pigs were diseased but had desired to get them passed through the market if possible. The public is to be congratulated upon his failure to do so.

FRENCH DICTIONARIES.

To the Editor of THE LANCET.

SIR,—I am searching for an up-to-date French dictionary (in French) which is really of a size suitable for the pocket and which contains explanations in French of a concise or almost synonymous nature—e.g., when searching for the meanings of the words dissiper and conduire: Dissiper—disperser, écarter, dépenser, distraire. Conduire—mener, guider, diriger, accompagner; se—se comporter. I have inquired for such a book at three of the chief foreign booksellers in London and the only book I have been able to obtain at all approaching my requirements is a little book entitled "Petit Vocabulaire de l'Académie Française. D'après la Dernière édition. Paris: Chez Firmin Didot frères, fils et Cie., Libraires, Imprimeurs de l'Institut de France, Rue Jacob, 56." The year of publication is not given but it appears to be about 60 years ago. The London foreign booksellers inform me that they do not know of the existence of any modern book of this type. If any of your readers do so I should be grateful for the information. Such a little book would save much time to an Englishman who has advanced to a certain extent in the study of the French language. I am, Sir, yours faithfully,

London, June 19th, 1909. GUILLAUME.

A BRIGHTON BOOT FUND.

A VERY praiseworthy charity in Brighton is the Children's New Year's Boot Fund, the object of which is explained by its name. At the annual meeting recently it was announced that no fewer than 2500 pairs of boots were distributed as soon as the children returned to school after the Christmas holidays, and 500 additional pairs when the funds permitted. The total amount raised last year was £613 5s. 2d., and included a portion of the amount given by His Majesty the King for the poor of the town on the occasion of his visit to Brighton in February.

THE HUMOURS OF PARLIAMENT.

THE following delightful passage appeared on the question paper of the House of Commons for June 16th:—

> 14. Mr. Leverton Harris,—To ask Mr. Chancellor of the Exchequer, which of the following substances when found in Great Britain are to be considered minerals within the meaning of Clause 12 of the Finance Act: abriachanite, acanthite, acmite, actinolite, adamite, adinole, adularia, ægerine, æschynite, agalmatolite, alkinite, alabandine, alabaster, alalite, albertite, albite, alexandrite, algodonite, allanite, allemontite, allochroite, allamorphite, allopalladium, allophane, almandine, alstonite, altaite, alum, aluminite, alunite, alunogene, amalgam, amazonstone, amber, amblygonite, amblystegite, amethyst, amianthus, amphibole, amphodelite, analcime, anatase, anauxite, andalusite, andesine, anglesite, anhydrite, ankerite, annabergite, annerodite, annivite, anomite, anorthite, anthophyllite, anthracite, anthraconite, antigorite, antimonial nickel, antimony, apatite, aphrite, aphrodite, apophyllite, aquamarine, aragonite, arcanite, ardennite, arfuedsonite, argentite, arkausite, arksutite, arquerite, arsenic, arseniosiderite, arsenolite, asbestos, asphaltum, astrakanite, astrophyllite, atacamite, atopite, augite, aurichalcite, avaite, avanturine, axinite, and azurite.

We feel constrained to point out for the information of Parliament that aurichalcite has nothing to do with gold. The word is properly spelled orichalcite, Gr. ὀρείχαλκος. Chemically it is a hydrous zinc copper carbonate $H_6(ZnCu)_5C_2O_{12}$.

METALLIC CONTAMINATION OF TINNED FRUIT.

A PROMINENT feature of Mr. W. F. Dearden's last report to the port sanitary authority of Manchester was the number of tons of preserved fruit seized and condemned on account of metallic contamination. The seams of the tins had been sweated and re-soldered, with the result that a considerable amount of solder had become exposed to the action of the acid contents, and in many cases there were so many pellets inside that the tins rattled like money-boxes. Lead and tin were found in all the samples forwarded to the Public Health Laboratory. The tomatoes contained as much as 1·20 of a grain per pound.

DEAFNESS AND BATH TOWELS.

A CORRESPONDENT writes that she considers she has found "the solution of the increasing cases of deafness." She thinks it due to the use of bath towels with which, she argues, it is impossible for the bather to dry the ears, whereas the old-fashioned fine towels allowed the inside of the ear to be dried. There may be something in our correspondent's idea, but surely it is quite simple for anybody to use both a fine towel and a bath towel, or if they do not possess the former article such a simple thing as a handkerchief or even a piece of soft paper will serve admirably as a means of drying the external meatus.

AN EXPIATORY SACRIFICE.

Mr. E. C. Blech, British Consul for the district of Jerusalem, reports that in 1908 public health remained good, but there was an epidemic of cerebro-spinal meningitis, confined almost exclusively to the poorer class of Jews, from which many deaths occurred, about 12 per cent. of the cases being fatal. "It is characteristic," adds Mr. Blech, "that as a means of averting this disease recourse has been had to the strange plan (followed, it is said, during a cholera epidemic 50 years ago) of marrying one or several couples of pauper Jews, who have been provided with an outfit and a living allowance for a certain period at the cost of the community. These marriages take place in the Jewish cemetery and are looked upon as a kind of expiatory sacrifice."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

MONDAY.

ODONTOLOGICAL SECTION (Hon. Secretaries—H. W. Trewby, D. P. Gabell, J. Howard Mummery): at 8 P.M.

Paper:
Mr. Percy Pickerill: Radicular Aberations.

Casual Communications:
Mr. James T. Carter: A Note on the Ameloblast Cells in Esox.
Mr. Warwick James and Mr. James Graham Forbes: An Epithelial Odontome.
Mr. J. Lewin Payne: An Interdental Splint.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY AND WEDNESDAY.—5 P.M., Dr. G. E. Smith: The Evolution of the Brain. (Arris and Gale Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. H. Sequeira: Clinique (Skin). 5.15 P.M., Lecture:—Dr. F. J. McCann: Irritable Bladder.
TUESDAY.—4 P.M., Dr. E. Wynter: Clinique (Medical). 5.15 P.M., Lecture:—Mr. T. H. Openshaw: The Treatment of Lateral Curvature.
WEDNESDAY.—4 P.M., Mr. M. White: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. C. Riviere: The Diagnosis and Therapeutic Use of Tuberculin.
THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. Collier: Aphasia according to the New Doctrine (illustrated by cases).
FRIDAY.—4 P.M., Mr. H. Todd: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Pardoe: Diagnosis of Surgical Diseases of the Urinary System.
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Etherington-Smith: Clinical.
WEDNESDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Low: Bilharziosis.
THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Dunn: Cases of Eye Diseases.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Lecture:—Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. S. Taylor: Valvular Disease: Aortic Regurgitation.
SATURDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. Mr. Harman: Diseases of the Eyes. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson); X Rays. 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).
TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. Carson). Clinics:—Surgical Out-patient (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Dr. R. M. Leslie: The Influence of Sex in Disease.
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 3.15 P.M., Special Lecture:—Mr. W. Turner: The After-treatment of Cases of Abdominal Section.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Dr. R. Wells: Points in Diagnosis and Treatment of Aortic Disease.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Mr. Armour; Surgery of the Nervous System.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Taylor: Spinal Cord.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.
FRIDAY.—3.45 P.M., Lecture:—Dr. A. Wylie: Larynx.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration: Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration: Dr. F. Palmer.
THURSDAY.—3 P.M., Clinical Demonstration: Dr. T. D. Savill.
FRIDAY.—2 P.M., Clinical Demonstration: Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (30th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (1st).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural. 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

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THE INDEX TO THE LANCET.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 24th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 18	30·34	NNW	...	104	70	52	52	55	Fine
,, 19	30·27	S.W.	...	122	73	55	57	60	Cloudy
,, 20	30·10	S.W.	0·01	104	65	58	58	62	Cloudy
,, 21	29·73	S.W.	0·01	120	72	57	58	61	Cloudy
,, 22	29·35	S.W.	0·02	116	65	57	55	58	Raining
,, 23	29·52	S.W.	0·01	123	64	52	52	57	Cloudy
,, 24	29·34	N.	0·20	111	59	52	52	53	Cloudy

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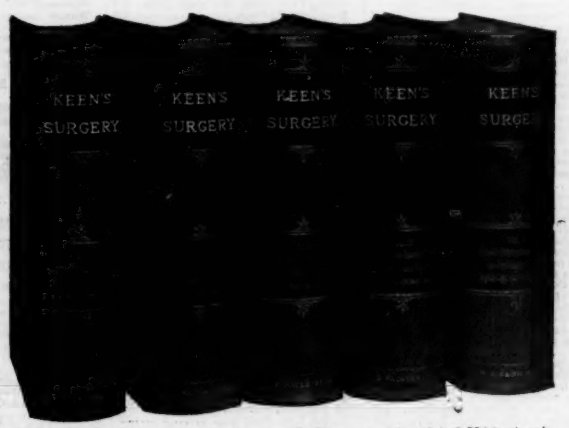
KEEN'S SURGERY



Keen's Surgery. Five octavo volumes of 1,000 pages each, with 2,500 text cuts and 50 coloured plates. Edited by W. W. KEEN, M.D., LL.D., Hon. F.R.C.S. Eng. and Edin. Per volume: Cloth, 30s net; Half Morocco, 34s. net.
Send for circular.

This, the fourth volume of Keen's new Surgery, fully maintains the standard of excellence and authority set by the three volumes which preceded it. The extensive and thorough treatment of each subject, the stamp of authority guaranteed by the names of the distinguished authors, and the unusually large number and unequalled excellence of the illustrations, combine to make this volume the peer of all others on the subjects considered Coley's article on Hernia is a monograph of over 100 pages, elaborately illustrated and masterfully presented; Abbe's article on the Rectum and Anus (60 pages), Van Hook's on the Intestines (100 pages), and Murphy's on the Appendix (70 pages) really form a complete treatise on Rectal and Intestinal Surgery. Edsall's chapter on Urine in Relation to Surgical Measures (15 pages), Ransohoff's on the Kidney, Ureter, and Suprarenal Glands (90 pages), Bransford Lewis' on the Bladder (60 pages), Cabot's on Stone in the Bladder (40 pages), Young's on the Prostate (100 pages), Horwitz's on Penis and Ureter (115 pages), and Bevan's on Scrotum, Testicle, Spermatic Cord, and Seminal Vesicles (40 pages), in themselves constitute a work on Surgery of the Genito-Urinary Organs and the Kidney, presented by authorities of the widest experience. Dench's article on the Ear covers 50 pages, while the chapter on the Eye by De Schweinitz forms a monograph of over 100 pages. Rodman's unique chapter on Age, Sex, Race, and Urban and Rural Residence in Relation to Surgery will be found of the greatest value. Three chapters of particular interest are those on Military Surgery (70 pages), by General R. M. O'Reilly, Naval Surgery (60 pages) by Admiral P. M. Rixey, and Tropical Surgery (60 pages) by Maj. Walter D. McCaw, each containing illustrations that will prove of the utmost value to all those interested in these surgical fields. This is the first time these subjects have been presented in a systematic and comprehensive way in any surgery. The work contains 582 original illustrations, 22 in colours.

The Lancet says: "The names of the writers are in themselves a guarantee that this treatise will contain a full exposition of modern surgery. No one could be better fitted for the task of editing such a work as this than Professor Keen, and a careful perusal of this volume serves but to confirm our anticipations. The work is a credit to the editor, to the contributors, and to the publishers."

The Edinburgh Medical Journal says: "A higher standard of excellence has been attained in this work than in any other with which we are acquainted. In the list of contributors we find the names not only of many of the best known surgeons of the United States and Canada, but also those of Bland-Sutton, Moynihan, Owen, and Mayo Robson in this country; of Lennander, of Upsala, and Albert Kocher, of Berne."

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W. B. SAUNDERS COMPANY, 9, Henrietta St., London, W.C.

Australian Agency: 430, Bourke St., Melbourne, where our books can be bought at London prices.

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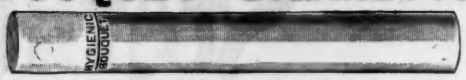

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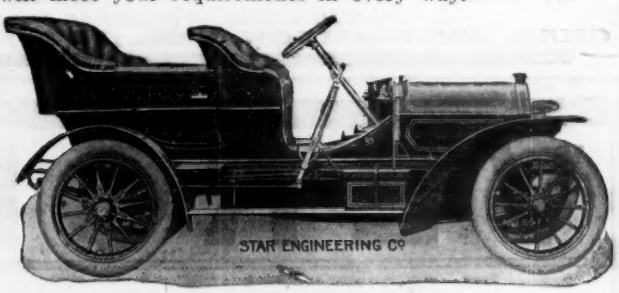

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Inclusive charge for Bedroom, Attendance, Table d'hôte Breakfast and Dinner, from **8/6** to **10/6** per day.

ALSO UNDER THE SAME MANAGEMENT . . .

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This Temperance Hotel adjoins the British Museum, and is exceptionally quiet and economical. Night Porter.

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THE MEDICAL INSURANCE COMMITTEE

(which comprises Representatives of THE LANCET and the British Medical Association) invite Medical Men who have not already availed themselves of the **Special Terms** of insurance which the Committee offer as agents for the **GUARDIAN ASSURANCE CO., Ltd.** (Est. 1821) of 11, Lombard St., London, E.C., to apply on the appended form for particulars before taking up insurance elsewhere. Policies are issued for—

(A) Combined insurance against Fire, Burglary, and the liability of the Workmen's Compensation Act in respect of servants. (B) Liability of practitioners for accidents to persons employed in the practice. (C) Personal Accident and Disease. (D) Life Assurance with or without profits; also Endowment and Partnership Life Assurance; (E) Fidelity Guarantee (F) Glass.

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Please send terms of Insurance as above (strike out any not required).

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THE GUARDIAN ASSURANCE COMPANY, LTD.,
Subscribed Capital, £2,000,000. Paid up, £1,000,000. Total Assets, £6,400,000. Income, £1,100,000.

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"MOST VALUABLE FOR FLAT FOOT."

Supplied to Numerous Hospitals and Infirmaries.

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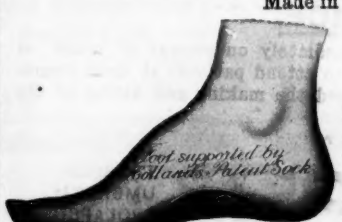

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PRICE:

Gents., 6/6 & 7/6,

Ladies, 5/6 & 6/6 per pair,

Small Children's, 4/6 & 5/6 per pair.

Composed of a leather moulded Sole and a combination of Steel Springs.

Send a pencil outline of the foot taken when standing as the best guide for size.

Can be had of the leading Surgical Instrument Makers, or direct from—

HOLLAND & SON, 46 (late 40), S. Audley St., Grosvenor Sq.

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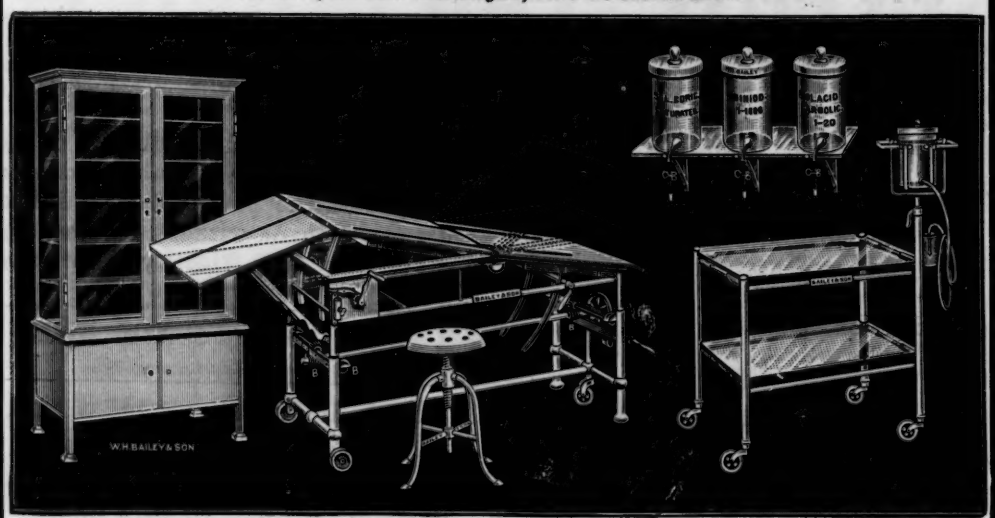

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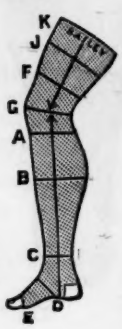

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"NO GOOD RESULTS CAN BE OBTAINED FROM ANY TRUSS WHILE THE DAILY BATH IS TAKEN WITHOUT ONE."

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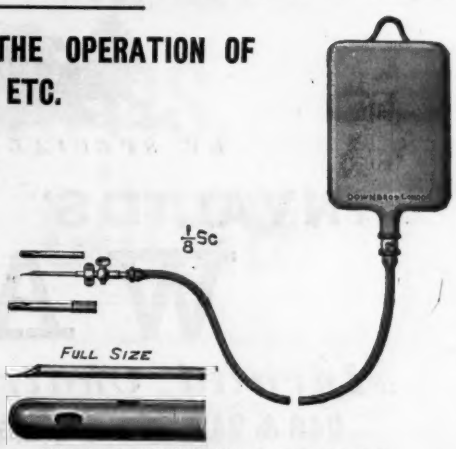
DOWN BROS'. SPECIALITIES

INSTRUMENTS USED IN THE OPERATION OF COLOTOMY, ETC.

Suggested by Mr. ARBUTHNOT LANE, F.R.C.S.

(Vide THE LANCET, Feby. 8th, 1908.)

COLOTOMY TUBE. (Connected with India-rubber Bag.)

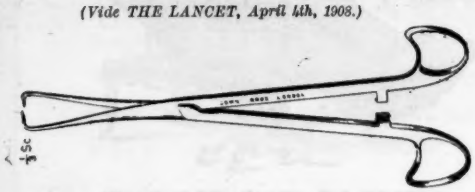


SALINE INFUSION APPARATUS.

NEW VULSELLUM FORCEPS.

Suggested by Mr. J. S. ASHE, L.R.C.S.I., &c.

(Vide THE LANCET, April 4th, 1908.)



The points interlock, and therefore do not "give," especially on side pressure. The under-surfaces of the points are flattened, which prevents their pulling through the tissues, &c., &c.

NEW PESSARY FOR THE TREATMENT OF PROCIDENTIA UTERI.

Suggested by Mr. SEYMOUR STRITCH, L.R.C.P. & S.Ed.

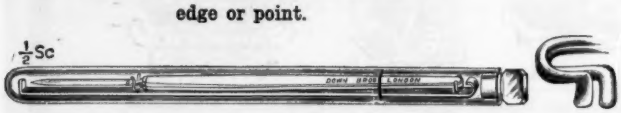
(Vide THE LANCET, March 7th, 1908.)

A ring fits into the vaginal fornices and supports the roof of the vagina, and enables the uterus to hang within its circumference, free from all pressure and liability to retain discharges. The stem is hinged to allow of easy introduction.

PORTABLE GLASS TUBE STERILIZER AND CARRIER FOR CRAEFE'S KNIVES.

Suggested by Dr. J. BURDON-COOPER.

Fitted with removable rack, in which the knife is securely fixed, thus preventing damage to edge or point.



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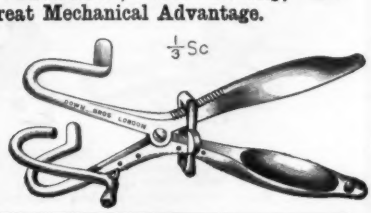
Easy of Introduction, Does not Slip, and Great Mechanical Advantage.



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BY SPECIAL APPOINTMENT.

INVALIDS' COMFORTS.

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Invalid Chair Manufacturer,

246 & 247, TOTTENHAM COURT RD., LONDON

(Late of Leicester Square),

TO HIS MAJESTY THE KING, QUEEN ALEXANDRA, THE LATE QUEEN, AND ROYAL FAMILY.

No. 61A. Our New Patent Combination Imperceptible Graduating Elastic Ventilating Mechanical Couch. The graduating mechanical actions of this couch are sufficient to meet all cases, no matter whether it is spinal affection, hip disease, fracture, paralysis, heart disease, or dropsy. A patient however weighty can be imperceptibly graduated to any position by a small windlass, without being touched by a nurse; at the same time, all pressure is avoided by the patent elastic ventilating mattress, which is a complete preventive of bed sores. The large patent lubricating castors are a great boon, as they enable this couch, with a patient of any weight, to be wheeled about the room with perfect ease. These couches vary in size from 2 feet to 3 feet wide.

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No. 14.

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No. 14 is the simplest and best constructed Chair for carrying Invalids up or down stairs.
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No. 46. Ward's Reading Stand for holding a book over chair, couch or bed.

THE LARGEST STOCK IN THE WORLD FOR SALE OR HIRE.

ESTABLISHED OVER 150 YEARS.

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No. 11. Ward's Improved Recumbent Chair, the most luxurious Invalid chair made.
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Ward's Cee-Spring Perambulators, unequalled for style and finish. A large stock of Children's Perambulators and Mail Carts always on view.

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BATH CHAIRS. BATH CHAIRS.

BRONCHITIS, WINTER COUGH

At this time of the year every medical man has under his care cases of "winter cough," especially of elderly people, that do not readily yield to treatment. We have a vast amount of evidence of the most positive character, showing the efficacy of Angier's Emulsion in relieving these very troublesome coughs. By its peculiar soothing, lubricating properties, it relieves the cough, facilitates expectoration and allays inflammation. Moreover, Angier's Emulsion rapidly improves nutrition and effectually overcomes the constitutional debility so frequently associated with these chronic cases. One very forcible reason for prescribing Angier's Emulsion, is that patients are always pleased with it, and frequently comment upon its soothing, "comforting" effects. The routine use of Angier's Emulsion for chronic bronchitis and "winter cough" has the endorsement of all medical men who have had opportunity of closely observing its effects.

ANGIER'S EMULSION

A DOCTOR'S PERSONAL TRIAL

Dr. —— begs to thank the Angier Chemical Co., Ltd., for their Angier's Emulsion, which he has taken with such decided benefit in Troublesome Bronchial Catarrh that he is pleased to add his testimony as to its great value as a tonic and to endorse every word of their prospectus as to its effects and advantages over other emulsions of fatty medicines, generally so nauseating, but in this case positively pleasant to take and easy to digest.

——, L.R.C.P., M.R.C.S.

AFTER MANY YEARS' EXPERIENCE

Dear Sirs, — After many years' experience I have much pleasure in giving my testimony as to the excellent results obtained from the use of Angier's Emulsion in Chronic Bronchial Catarrh, especially when accompanied with severe Dyspepsia, in which cases the petroleum materially aids in restoring normal action of the digestive organs. I prescribe Angier's Emulsion every day during the winter months.

[Signed] ——, M.D.

FREE SAMPLES TO THE MEDICAL PROFESSION.

THE ANGIER CHEMICAL CO., LIMIT
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BATH CHAIRS. BATH CHAIRS.

BY SPECIAL APPOINTMENT.

INVALIDS' COMFORTS.

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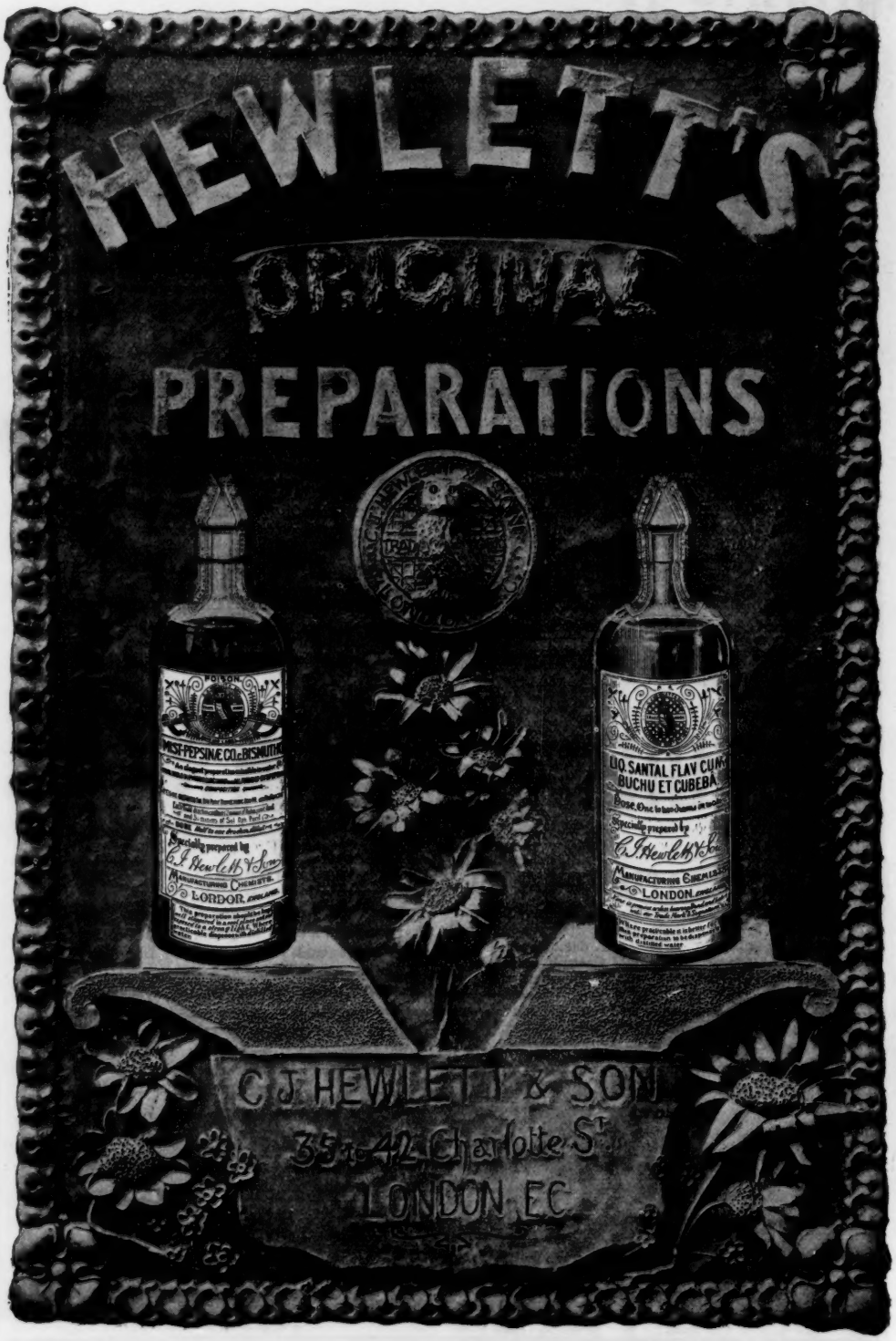
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Treated Milk is pleasantly but only slightly acid.
It is NOT BITTER.
It is Pure White, not Yellow.
It is Curd, not equal parts of Curds and Whey.

We respectfully suggest that those interested in the matter should obtain samples of the various 'makes' on the market and try them side by side to satisfy themselves of the veracity of our statement that

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The TRILACTINE OUTFIT (Patented) is the most ingenious and effective apparatus of the kind on the market. Price 11/6 post free. *Full details on application.*

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Telephones—
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Whooping Cough!

EXTRACT FROM REPORTS OF THE BRITISH MEDICAL PROFESSION:

"I have used your Pertussin in several cases of bronchial and laryngeal catarrh with satisfactory results, and hope to get further supplies through your agents."
—Dr. E. W., M.A., M.B., B.Ch.

"In two cases of bronchial catarrh the above gave satisfactory results, with no depressing or other ill effects. I like the preparation." —Dr. M., M.D., M.B., M.R.C.S.

"Dr. Mc B. has not yet been able to test the preparation fully, but he is glad to say that it has been very satisfactory in the cases to which he has already applied it."
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"I thank you for the two bottles of Pertussin you sent me, which I have tried in the following cases: Bronchitis after influenza, lady at 72; no change in cough; expectoration rather easier. Bronchitis, acute, lady at 22; expectoration decidedly easier I am trying it in two more cases with some success." —Dr. N.

"I tried the bottles you sampled, and have ordered from the chemists about thirty more to my patients, and in most cases with excellent results in bronchial asthma, cardiac asthma, and bronchial catarrh. I am much indebted to you for bringing it under my notice."
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Taeschner's

Pertussin

Trade-Mark

EXTRACT. THYMI SACCHARAT.

Made by Kommandanten-Apotheke E. Taeschner, Seydel Strasse, Berlin. Sole British Agents: THOMAS CHRISTY & CO., Old Swan Lane, London E.C., from whom free samples and literature are obtainable.

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Benger's Preparations

OF THE NATURAL DIGESTIVE PRINCIPLES.

Liquor Pancreaticus.

(BENGER).

A nearly tasteless and odourless solution of the digestive principles of the Pancreas.

For the preparation, at Home, of Peptonised or partially digested Foods, Milks, Soups, Beef Tea, &c.

LIQUOR PANCREATICUS is also used as an addition to various articles of invalids' diet, shortly before they are eaten, to render them more easy of digestion. Directions given with each bottle.

Sold in Bottles 2/6, 4/6 and 8/6.

BENGER'S

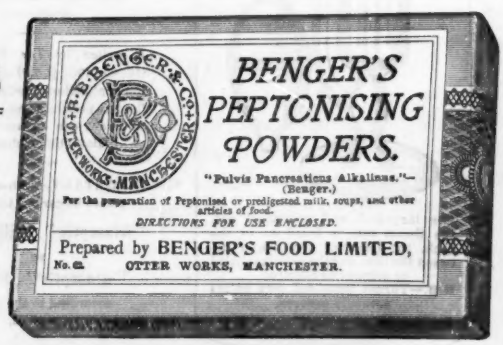
Peptonising Powders

In Glass Tubes

These may be used by those who prefer powder to liquid, instead of the Liquor Pancreaticus. They are colourless, odourless and instantly soluble.

An exceedingly active and trustworthy preparation.

Sold in boxes 1/- each retail.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OTTER WORKS · MANCHESTER
BENGER'S
PEPTONISING
POWDERS.
"Pulvis Pancreaticus Alkalinus."—(Benger.)
For the preparation of Peptonised or predigested milk, soups, and other articles of food.
DIRECTIONS FOR USE ENCLOSED.
Prepared by BENGER'S FOOD LIMITED,
OTTER WORKS, MANCHESTER.

To be obtained from all the leading Chemists, etc., everywhere.

BENGER'S FOOD Ltd., Otter Works, MANCHESTER.

Telegrams: "BENGERS, MANCHESTER."

MODERN THERAPY.

MEDICATION BY SPRAY.

Acetozone Inhalant
(P., D. & Co.)

A 1 per cent. solution of Acetozone in neutral liquid paraffin. A powerful germicide useful in bacterial or other diseases of the nose, mouth, ear or throat.

Adrenalin Inhalant
(P., D. & Co.)

A 1:1000 solution of Adrenalin Chloride with Chloretone, forming a soothing and antiseptic astringent spray valuable in acute nasal catarrh, rhinitis, tonsillitis, pharyngitis, etc.

Chloretone Inhalant
(P., D. & Co.)

A 1 per cent. solution of Chloretone with camphor, menthol and oil of cinnamon, whose antiseptic and local analgesic properties are very effective in nasal catarrh, asthma, bronchitis, pertussis, laryngitis, etc.

Inhalant No. 10 (P., D. & Co.)

Tincture of Iodine ...	120 minims.
Glycerin	1 fl. ounce.
Fluid Tolu, Soluble ...	1 fl. ounce.
Carbolic Acid	120 grains.
Alcohol to make 3 fl. ozs.	

[Compressed Tablet, Nasal
(P., D. & Co., No. 34).

Sodium Bicarbonate	5 grains.
Sodium Biborate ...	5 grains.
Sodium Chloride ...	5 grains.
Sodium Benzoate	7·24 grain.
Sodium Salicylate	7·24 grain.
Thymol	7·48 grain.
Menthol	7·96 grain.
Oil Eucalyptus ...	7·48 minim.
Oil Gaultheria ...	7·96 minim.

For use as a nasal douche or spray, powder one tablet and dissolve in four ounces of warm water.

THE "GLASEPTIC" NEBULISER

delivers an extremely fine nebula.

Primarily intended for oily solutions, but efficient with alcoholic or aqueous fluids.

For laryngeal and post-nasal use, the throat tube is fitted on to the neck, the flattened end placed between the lips, and the nebula inhaled or exhaled as required.
N.B.—Throat tubes not sent unless specially ordered.

Perfect Appliances in their Respective Spheres.

No metal or vulcanite in their construction, therefore no contamination of the medicament.

Easily rendered aseptic.

Effective with only a small quantity of fluid.

No taking apart in order to introduce the inhalant, consequently no getting out of order.

Pneumatic apparatus of best English-made red rubber.

May be had either plain or graduated.

A writer in *The Practitioner* (March, 1907, p. 317) states: "For the application of oily or viscous fluids, probably no better instrument can be used than the 'Glaseptic' Nebuliser."

IMPORTANT.—When ordering please be careful to specify

"Glaseptic" NEBULISER,

or

"Glaseptic" SPRAY,

according to the action required.

THE "GLASEPTIC" SPRAY

produces a copious spray, finely subdivided.

Specially designed for aqueous or alcoholic solutions, but applicable for oily fluids of a limpid character.

Most effective for the local application of medicaments to the pharyngeal region, nasal cavities, etc.

PARKE, DAVIS & Co., LONDON.

MODERN THERAPY.

Body Nutrition.

EGG EMULSION OF COD LIVER OIL.
(Emulsio Olei Morrhuæ cum Vitellis, P., D. & Co.)

Contains 40 per cent. of the best Lofoten Cod Liver Oil, emulsified with fresh eggs and flavoured with brandy.

Therapy.

A nutrient and reconstructive of exceptional value, rich in the essentials of vital heat and force, and possessing a gentle stimulant power which is valuable in many cases of debility. It is entirely free from rancidity, and well masks the slight flavour inseparable from even the best cod liver oil.

EGMOL.
(Emulsio Olei Olivæ cum Vitellis, P., D. & Co.)

Contains 40 per cent. of virgin olive oil, emulsified with fresh eggs and flavoured with brandy.

Therapy.

Acceptable to those who cannot tolerate cod liver oil. *The Lancet* states (Nov. 2, 1907, p. 1329):—"It is clearly a powerful nutritive agent. There is no reason why olive oil should not favour assimilation and nutrition as well as does cod liver oil."

COD LIVER OIL EMULSION, 33%—
with hypophosphites of calcium and sodium.
(Emulsio Olei Morrhuæ, 33%, P., D. & Co.)

Therapy.

An agreeable preparation of specially pure ingredients so presented as to be least likely to disturb digestion, and combining the tonic alterative properties of the hypophosphites with the nutritive value of the oil.

CREOSOTED EMULSION OF COD LIVER OIL with hypophosphites of calcium and sodium. (Emulsio Olei Morrhuæ c. Creosoto, P., D. & Co.)

Represents 25 per cent. of finest cod liver oil and 1 per cent. of pure beechwood creosote.

Therapy.

The germicidal and tonic properties of creosote render this preparation highly beneficial in bronchial and pulmonary affections. It eases cough, disinfects mucus, facilitates expectoration and increases nutrition.

These emulsions are supplied in bottles of 8 and 16 fluid ounces.

Please specify "P., D. & Co." when prescribing or ordering.

PARKE, DAVIS & Co., 50-54, BEAK ST., REGENT ST., **LONDON, W.**

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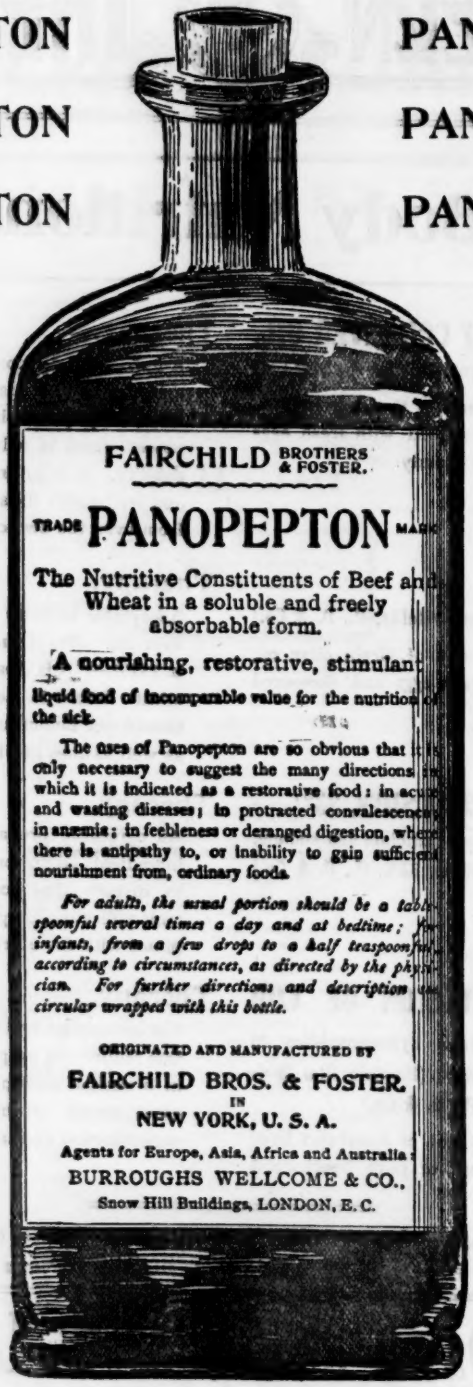
FAIRCHILD BROTHERS & FOSTER.
TRADE PANOPEPTON MARK
The Nutritive Constituents of Beef and Wheat in a soluble and freely absorbable form.
A nourishing, restorative, stimulant
liquid food of incomparable value for the nutrition of the sick.
The uses of Panopepton are so obvious that it is only necessary to suggest the many directions in which it is indicated as a restorative food: in acute and wasting diseases; in protracted convalescence; in anæmia; in feebleness or deranged digestion, where there is antipathy to, or inability to gain sufficient nourishment from, ordinary foods.
For adults, the usual portion should be a tablespoonful several times a day and at bedtime; for infants, from a few drops to a half teaspoonful according to circumstances, as directed by the physician. For further directions and description see circular wrapped with this bottle.
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IN
NEW YORK, U. S. A.
Agents for Europe, Asia, Africa and Australia:
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Contains in solution, in an agreeable form, the entire nutritive constituents of beef and wheat.

Contains all that is digestible in beef—in its juice and in its muscle tissues.

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Contains all the savory and stimulant elements, the extractives, the mineral constituents of beef and wheat.

Contains these constituents in the soluble, perfectly diffusible form into which they are converted by the natural animal enzymes in the process of normal digestion.

Can be relied upon in cases where the nutrition of the patient is of prime importance.

Has saved the patient in desperate straits due to intolerance of food.

Has nourished and restored in many cases where the patient has steadily lost strength on other foods.

Possesses remarkably restorative . . and stimulating . . properties.

Is the most nutritious, the most agreeable and reliable—the BEST of all foods for the sick.

Panopepton as a food in Influenza.

Panopepton is sustaining, palatable, and acceptable to the most delicate stomach.

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IN PNEUMONIA the inspired air should be rich in oxygen and comparatively cool, while the surface of the body, especially the thorax, should be kept warm, lest, becoming chilled, the action of the phagocytes in their battle with the pneumococci be inhibited.

Antiphlogistine

applied to the chest wall, front, sides, and back, hot and thick, stimulates the action of the phagocytes and often turns the scale in favor of recovery.

It is an acknowledged fact, as declared by a well-known medical teacher and author in his latest text-book on treatment, that "heat applied and persisted in over the entire diseased area is a most potent and physiological antagonist to those essential conditions which are directly induced by the causes of the disease, and from which all ultimate pathologic results must develop. It is profoundly stimulating, and while local heat from undue combustion is present, the applied heat stimulates the capillaries and physiologically unloads the venous capillaries. At the same time it stimulates the arterial capillaries through its influence upon the peripheries of the nerves and secondly upon the nerve centres, to drive the accumulating tide through the engorged vessels, thus unloading them into the veins. It thus carries off the accumulating waste, brings into the capillaries a new tissue supply and quickly remedies the harm that has been done them in the primary congestion.

"It is a most rational procedure. It is logical, it is reasonable, it is physiological, and it is highly scientific. And such a course is always acceptable."

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Instead of depending on an emetic for quick action in croup, the physician will do well to apply Antiphlogistine hot and thick from ear to ear and down over the interclavicular space. The results of such treatment are usually prompt and gratifying.

Antiphlogistine hot and thick is also indicated in Bronchitis and Pleurisy.

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THE GENERAL APOTHECARIES' COMPY., LIMITED,

Wholesale and Export Druggists
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For the treatment of disorders of the Stomach, Liver, Kidneys and Bladder; also for Rheumatism, Rheumatic Arthritis, Gout, Lumbago, Sciatica, Neuralgia and Uric Acid Diseases.

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A Morphia Derivative, free from injurious by-effects.

An Excellent Substitute for Morphine; an Approved Remedy for the Treatment of Affections of the Respiratory Organs; an Analgesic and Sedative. Recommended also in the Treatment of the Morphia Habit.

DIONINE is easily soluble; its solutions are neutral, and therefore the injections are painless.

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DIONINE TABLETS, each 0·03 gram. (½ grain) in Original Tubes.

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10% & 25%

A valuable Substitute for the Alkali Iodides, free from all undesirable after-effects.

Especially Indicated in Asthma, Bronchitis, Emphysema, Arterio-sclerosis, Scrofula, and Goitre.

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An Approved Bromine Preparation.

Very agreeable; highly nutritive; does not give rise to Bromism.

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Excellent Hæmatinics.

Both can be obtained in Tablets.

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Containing 15% and 25% Chemically Pure MgO_2.

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Containing 50% chemically pure ZnO_2.

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30% by Weight (=100 Vols.).

Chemically Pure and Acid-free Peroxide of Hydrogen.

Disinfectant and Deodorant, entirely non-irritating non-poisonous, odourless. Suitable for all Surgical, Otological, Rhinological, Laryngological, and Odontological Purposes.

In Original Bottles of 50 and 200 grams.

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A very Efficient, Harmless Hæmostatic, with Sedative Properties.

Particularly recommended in Uterine Bleeding, Bleeding from the Stomach, Intestines, and Bladder, and in Hæmoptysis.

Given Internally in Tablets, each 0·05 gram. (¾ grain).

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Recommended in Simple Insomnia due to Psychical Affections and Cases of Excitement.

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The well-known remedy for Sleeping Sickness

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Ampules of "ATOXYL" solution.

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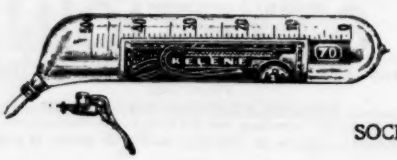

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NIGROIDS (FERRIS)

Registered.

(MENTHOL AND LIQUORICE PELLETS.)

As supplied to many of the Consumptive Sanatoria of this Country.

EXCELLENT AS A VOICE STIMULANT.

These little Pellets will be found to be an exceedingly convenient and efficacious means of prescribing Menthol. Patients may carry a tin in the pocket and use one or two Pellets whenever the cough or catarrh is troublesome. Owing to their small size they are easily retained when singing or speaking; and in foggy, damp, or cold weather a Pellet sucked slowly will stimulate and keep the voice clear.

PRICES:

In tins, *3d.* and *1s.* each; *2s. 3d.* and *8s.* dozen.

In bottles, ¼-lb., *1s. 10d.* each, *18s.* doz.; ½-lb., *3s. 4d.* each, *33s.* doz.; 1-lb., *6s.* each, *60s.* doz.

Single bottles or tins supplied to medical men at the dozen rate.

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Soluble Ear Bougies.

These small Ear Bougies, to which we have given the name of "Otoids," furnish a simple and efficient method of introducing medicaments into the ear. They are easily inserted and melt readily. A small pledget of cotton wool may be used to retain them if necessary.

We prepare the following formulæ:—

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A 2.	Acid Boric, 1 gr.
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C 2.	Chinosol, ¼ gr.
C 6.	Cocaine, 1-10 gr.
C 10.	Cocaine, ½ gr.
H 10.	Hydrarg. Oxid. Flav.
I 4.	Iodoform, ¼ gr.
I 5.	Iodoform, 1 gr.
I 10.	Iodoform, ½ gr. and Boric Acid, 1 gr.
L 2.	Lead Acetate, ¼ gr.
L 6.	Lead Acetate, ½ gr. and Acid Boric, 1 gr.
L 10.	Lead Acetate, ½ gr. and Opium ¼ gr.
M 2.	Morphia, 1-10 gr.
M 6.	Morphia, ¼ gr.
M 10.	Morphia, 1-10 gr. and Cocaine, 1-10 gr.
M 14.	Morphia, 1-10 gr.; Cocaine, 1-10 gr.; and Acid Boric, 1 gr.
M 18.	Morphia, 1-10 gr. and Ext. Bellad., ¼ gr.
N 2.	Nepenthe = 1-10 gr. Morphia.
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Price 8d. per dozen.

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"Your 'Otoids' form the best method of applying Iodoform to the inner ear. In the case of a child of ten, who had had purulent discharge for two or three years following scarlet fever, I syringed out the ears, and after wiping out with wool, put in an 'Otoid.' Two months after there had been no discharge, and the child was quite cured.

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A sedative, antiseptic and healing Ointment; it is non-poisonous and non-irritant; it allays itching very quickly, and its antiseptic and sedative qualities render it of great service in inflammations and eruptions of the skin. Its use is specially indicated in Eczema, Psoriasis, Erysipelas, Shingles, &c.; and in burns and scalds of all kinds it soothes and heals, while it forms an excellent dressing for minor operations.

PRICES:

¼-lb. Pots, 1/1 each; ½-lb. Pots, 1/10 each;
1-lb. Pots, 3/6 each; 2-lb. Pots, 6/10 each;
4-lb. Pots, 13/4 each.

The Dispensing of Ointments is always a troublesome and unpleasant operation, and for the convenience of many of our customers we are putting up our **"Ung. Sedresol"** in three sizes of white porcelain pots with celluloid covers. These pots are sent out in boxes of half a dozen, the name of the ointment appearing on the box only, and the pots themselves being simply labelled with a neat dispensing label: "The Ointment to be used as directed," &c., &c.

There is a small reference number in the corner of the label to indicate the nature of the contents in case the patient comes back for a repeat prescription. Medical Practitioners who are obliged to do their own dispensing will find these small pots extremely convenient and a great saving of time and trouble.

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UNG. SEDRESOL (Ferris), *ready for Dispensing*:—

No. 1 Size Pots, containing about 1 oz., per dozen, 4/9
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A pure superfatted Soap, containing the same medication as our Ung. Sedresol. Of great value in the treatment of Eczema and other diseases of the skin.

Price 9d. per Tablet.

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IS ALL ESSENTIAL.

The Medical Profession is unanimous in its appreciation of the hygienic and food value of the product of the Olive, but to secure these in their integrity ***the oil must be absolutely pure and of high grade.***

Low qualities of imported oil of doubtful purity and the numerous substitutes sold as "salad oil" are worthless as food articles, even if they are not actually noxious.

Good Olive Oil may be recognised by its being bright, of a fine golden colour, possessing a delicate taste of the fruit.

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Our Oil is imported from Tuscany in earthen jars or oak casks, is filtered before being bottled, and is guaranteed to be of absolute purity and of the highest quality that can be obtained.

PRICES:—

Reputed quart	..	2s. 3d.	per bottle,		2s. 9d.	post free.	
„ pint	..	1s. 3½d.	„	„	1s. 8½d.	„	„
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THE
Ideal Tonic Wine.

VIBRONA contains **all the Tonic and aromatic principles of Cinchona** and is therefore **superior to Quinine alone.**
VIBRONA is pleasant to take, and **does not produce headache, tinnitus or any other of the disagreeable sensations** caused by Quinine.

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30th July 1907. B. H. Paul

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Sterilette Specialities.

STERILETTES are specially introduced for purposes of hypodermic medication, and are hermetically-sealed sterilised glass capsules, of plain or dark amber-tinted glass, containing from 1 c.c. to 5 c.c. of a sterilised liquid, their capacity depending upon the dose required to be used.

CALOMEL CREAM. (SQUIRE.)

A sterilised preparation containing pure Hydrosublimed Calomel, guaranteed free from corrosive sublimate. Each STERILETTE contains ¼, ⅜, or 1 grain of pure Calomel.

It has been extensively used at one of the leading London Hospitals, and its injection is unaccompanied by pain.

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Prepared in three strengths, STANDARDS I., II., and III., STANDARD II. being that usually employed. Used in conjunction with STERILETTE AMYLOPSIN in the treatment of malignant growths.

"I have mostly used Squire's Standard II. and Standard III., especially Standard II., which has proved to be a fairly constant preparation."—*The Lancet, Nov. 16th, 1907.*

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"Splendidly as the 'Companion' has served in the past so is it calculated to serve equally in the future, for no pains have been spared to bring the present edition into complete line with the elegances and refinements of modern pharmaceutical attainments. ..... The 'Companion' is a CLASSIC, but it is a STANDARD also, and the author may be congratulated heartily on having completed a work which, because of its thorough and authoritative character, is sure to receive the appreciation of physician, chemist, and pharmacist alike."—THE LANCET, Nov. 28th, 1908.

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Active Aromatic Aperients.

The undermentioned preparations of Cascara and Senna, individually and combined, have been specially made to suit children and delicate persons.

KASAK ELIXIR.

DOSE—For a Child, one or two teaspoonfuls (according to age); for an Adult, one tablespoonful.

KASENA.

KASAK WITH SENNA.

DOSE—For Children, one teaspoonful. Adults, one dessertspoonful.

SENNINE.

A palatable Syrup made from the very finest quality of Senna.

DOSE—Half to two teaspoonfuls.

Elegant Elixirs.

CINNAMAL.

ELIXIR CINNAMOMI (SQUIRE).

It possesses the powerful antiseptic properties of Cinnamon Bark without its astringency.

It is specially serviceable as a preventive against INFLUENZA and relieves ordinary cold in the head.

DOSE—20 drops in half-a-wineglassful of water.

GLYPHOCAL ELIXIR.

An elegant Elixir of the Glycerophosphates, delicately flavoured and partaking of the nature of a Glycerophosphate Wine.

DOSE—One to two fl. dr. = 3·6 to 7·1 c.c.

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SYRUP. FERRI PHOS. CO. (SQUIRE), SQUIRE'S FEROCAL, Chemical Food, is known all the world over as a STANDARD preparation.

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SQUIRE'S GLYCEROPHOSPHATE SYRUP.

The best form in which to administer the Glycerophosphates.

It is delicately flavoured and palatable, and makes an excellent tonic which will not distress the most delicate stomach.

INVALUABLE IN NEURASTHENIA.

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INVALUABLE AS A RECONSTRUCTIVE IN CONVALESCENCE, ESPECIALLY AFTER INFLUENZA.

Each fl. drm. (3·6 c.c.) contains $\frac{1}{110}$ grain (0·0005 gramme) of Strychnine. DOSE—One to two fl. dr. = 3·6 to 7·1 c.c.

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Invaluable as a nerve-tonic and reconstructive. Its value in increasing the number of red-blood corpuscles has been fully demonstrated.

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Typical Terperoin Therapy.

The attention of the Medical Profession is specially directed to the undermentioned Preparations.

They have been found to give excellent results in the treatment of Asthma, Emphysema, Coughs, Chronic Bronchitis, &c.

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Terpene Hydrate ... gr. ½
Heroine Hydroch. ... gr. $\frac{1}{10}$ } in each fluid drachm.
Syrup of Pine ... ... q.s.

DOSE—One or two fl. drm. = 3·6 or 7·1 c.c.

An elegant and permanent Elixir, pleasant to the taste, and of well-proved efficacy.

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Terpene Hydrate ... gr. 1
Heroine Hydroch. ... gr. $\frac{1}{120}$ } in four pastilles.
Menthol ... ... gr. $\frac{1}{10}$

DOSE—One or two occasionally.

A specially useful form in which to prescribe the drugs indicated, as on account of their portable nature the pastilles may be carried in the pocket during the daytime.

Cystamine Compounds.

These CYSTAMINE COMPOUNDS are powerful urinary Antiseptics, specially useful in bacterial and purulent conditions of the Bladder and Urethra, Cystitis, Phosphaturia, &c.

They are described in the SECOND APPENDIX to SQUIRE'S POCKET COMPANION.

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(CYSTAMINE LITHIUM BENZOATE.)

DOSE—5 grains = 0·32 gramme.

TABLETS (5 grains), **EFFERVESCENT GRANULES** (one teaspoonful equal to 5 grs.).

CYSTAMINE BENZOATE.

DOSE—5 grains = 0·32 gramme.

TABLETS (5 grains), **EFFERVESCENT GRANULES** (one teaspoonful equal to 5 grs.).

CYSTAMINE.

DOSE—5 grains = 0·32 gramme.

TABLETS (5 grains), **EFFERVESCENT GRANULES** (one teaspoonful equal to 5 grs.).

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The Ideal Antiseptic and Disinfectant.

MEDICAL IZAL

Non-Poisonous. Non-Corrosive.

Does not coagulate Albumen. Does not Oxidize.
1 in 900 destroys the *Staph. Pyog. Aureus* in ten minutes.
Definite germicidal power guaranteed. The percentage of active material present is constant.
Does not cause Irritation.
Does not corrode Instruments or injure the operator's hands.

For
Puerperal Sepsis

"Out of 79 cases of Puerperal Sepsis treated by general means alone, with or without intra-uterine douches, 37 died—a mortality of 46 per cent. In 86 cases where the method of using Izal I have described was employed, the mortality was 23 per cent. only."

Journal of Obstetrics and Gynecology. January, 1907.

Indicated in Eczema and Ringworm.

For
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Indicated in chronic dyspepsia, fœtid bronchitis, foul stomach, diarrhœa, dysentery and typhoid fever.

"In dysentery of the very worst as well as of the milder types, I have found this drug *facile princeps* the most reliable remedy, but I cannot too strongly insist on the fact that small doses are useless, and the drug must be pushed to doses of the kind recommended."

Indian Medical Gazette, October, 1904.

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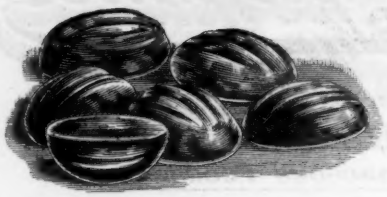
SOFT, DEMULCENT, PALATABLE.



In the medical treatment of most throat affections a simple and effective method of local application is a necessity.

The exigencies of modern practice demand the employment of a large variety of drugs in a soothing and demulcent form.

The basis of the "ALLENBURYS" THROAT PASTILLES is composed of a special Pâte de Jujube which is soothing and palatable, while the local action of the drug incorporated is made more certain by the slow rate of solution of the jujube in the saliva, than is the case with the ordinary lozenge or pastille.

The following Pastilles are largely used, and have been found from long practical experience to be very efficacious:—

No. 9—Menthol, Cocaine and Red Gum

Menthol	gr. $\frac{1}{20}$
Cocaine	gr. $\frac{1}{20}$
Red Gum	gr. 2

No. 23—Eucalyptus and Red Gum

Eucalyptus Oil	m. $\frac{1}{2}$
Red Gum	gr. 1

No. 28—Compound Guaiacum

Guaiacum	gr. 1
Chlorate of Potash	gr. 2
Red Gum	gr. $\frac{3}{4}$

No. 29—Compound Rhatany

Extract of Rhatany	gr. 2
Cocaine Hydrochlor.	gr. $\frac{1}{20}$

No. 38—Chlorate of Potash, Borax and Cocaine

Chlorate of Potash	gr. 2
Borax	gr. 1
Cocaine	gr. $\frac{1}{20}$

No. 54—Menthol and Eucalyptus

Menthol	gr. $\frac{1}{20}$
Eucalyptus Oil	m. 1

No. 56—Menthol, Eucalyptus and Cocaine

Menthol	gr. $\frac{1}{20}$
Eucalyptus Oil	m. 1
Cocaine	gr. $\frac{1}{20}$

No. 66—Menthol and Cinnamon

Menthol	gr. $\frac{1}{20}$
Cinnamon Oil	m. $\frac{1}{2}$

No. 69—Terebene, Eucalyptus and Cocaine

Terebene	m. 2
Eucalyptus Oil	m. 1
Cocaine	gr. $\frac{1}{20}$

1/- Box of any variety, with detailed list, free to Medical Men in Great Britain.

ALLEN & HANBURYS Ltd.,

37, Lombard Street, LONDON, E.C.

UNITED STATES—Niagara Falls, N.Y.
CANADA—Gerrard Street East, Toronto.
AUSTRALASIA—Bridge & Loftus Streets, Sydney.
SOUTH AFRICA—Castle Street, Cape Town.

TRADE MARK. A.D.1715.

An Ideal Tonic in Convalescence.

"Byno" Hypophosphites

An Active Aid to the Digestion of Farinaceous Foods.

'Byno' Hypophosphites may be taken when the digestive organs are weak and impaired, and when ordinary tonics cannot be tolerated.

THE constituents of 'Byno' Hypophosphites ensures the effectual combination required in a perfect tonic. This combination, though somewhat complex, is in practice most successful, and 'Byno' Hypophosphites will be found much superior to the official syrup of which it is the analogue. It stimulates the appetite whilst aiding digestion; it conserves and invigorates the nervous system.

PRACTICAL CLINICAL EXPERIENCE of many years has proved that what theoretically is expected of 'Byno' Hypophosphites by reason of its composition is fully justified. It is, as the *British Medical Journal* says,

"One of the Most Popular Tonics of the Day."

SAMPLES SENT FREE TO MEDICAL MEN, ON REQUEST.

ALLEN & HANBURYS Ltd.,

37, Lombard Street, LONDON, E.C.

UNITED STATES: Niagara Falls, New York.
CANADA: Gerrard Street East, Toronto.
AUSTRALASIA: Bridge and Loftus Streets, Sydney.
SOUTH AFRICA: Castle Street, Cape Town.

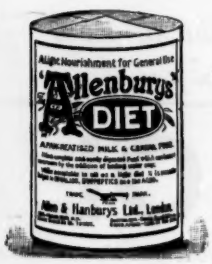
TRADE MARK. A.D.1715.

A Pancreatised Food that can be made in a minute, the addition of boiling water only being necessary.

The 'Allenburys' DIET

BY the use of the "Allenburys" Diet all trouble of peptonising milk and farinaceous foods is overcome. In the sick room it is invaluable, as the food is easily digested and assimilated, and only the exact quantity required need be prepared at a time.

The "Allenburys" Diet is made from pure full cream milk and whole wheat, both ingredients being partially pre-digested during manufacture. It can be taken by those who cannot digest cow's milk, and provides a light and very nourishing diet for Invalids, Dyspeptics, and the Aged.



For travellers by sea or land this complete food will be found exceedingly valuable.

Sample, with full particulars, sent free on request.

ALLEN & HANBURYS Ltd.,

37, LOMBARD STREET, LONDON, E.C.

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OVALTINE

A Complete Concentrated Food.

OVALTINE is a new dietetic preparation of high therapeutic value. In the form of a granular powder of appetizing fragrance, it is composed of Malt Extract, Fresh Swiss Cow's Milk, Fresh Eggs and Converted Cocoa, and contains also that most valuable principle, Organic Phosphorus (active Lecithin).

OVALTINE is extremely palatable with warm milk and water, sweetened to taste. It is prepared without boiling, so as to leave the Lecithin intact. OVALTINE is clearly indicated as a substitute for Tea, Coffee, &c., especially in Uric Acid troubles. It is

THE ONLY PREPARATION OF ITS KIND CONTAINING LECITHIN.

A Valuable Digestive Agent and Nervine Tonic.

DELICIOUS IN FLAVOUR. SUITS YOUNG AND OLD.

OVALTINE is invaluable in Convalescence (particularly after Influenza), Malnutrition, Exhaustion, Neurasthenia, Brain Fag, Over Study; in Stomach Disorders, Deranged Digestive Functions, and Wasting Diseases.

OVALTINE is used regularly in the Sanatoria of Davos, Leysin, &c. Being light and readily assimilated OVALTINE is there employed with striking success for the over-feeding of the tuberculous.

Extract from THE LANCET.

"As was ascertained in our experiments it [Ovaltine] contains lecithin, the peculiar fatty phosphorous constituent found in the yolk of an egg. There can be no doubt of its value as a special food. It contains in excellent proportion materials which are available for the repair of tissue."

LITERATURE AND SAMPLES FREE TO MEDICAL MEN.

OVALTINE is packed in 4½ oz., 9 oz., and 18 oz. Tins.

FORMITROL

A specific remedy against infectious diseases of the mouth and throat (pseudo-membranous angina), chronic and acute pharyngitis, diphtheria, scarlatina, follicular tonsillitis, measles, thrush, inflammation of the gums, &c. A safe and pleasant form for the **internal administration of formaldehyde,** of which each pastille contains one centigramme (about $\frac{1}{6}$ grain). FORMITROL, absolutely harmless, is an anti-pyretic, and can be recommended as a prophylactic in case of epidemics. Unequalled by any similar article on the market.

PRICE:—5/6 per doz. Tubes of 30 Pastilles each, 4/- per lb, in bulk; or in small Tubes containing 10 Pastilles (unlabelled) for dispensing, 2/6 per dozen.

SAMPLES TO MEDICAL MEN ON APPLICATION.

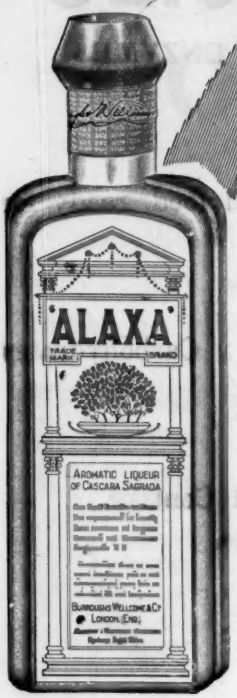
When prescribing specify **"FORMITROL WANDER."**

A. WANDER, Ph.D., Manufacturing Chemist, 1 and 3, Leonard Street, City Road, London, E.C.

TRADE 'Alaxa' MARK

BRAND

AROMATIC LIQUEUR
OF CASCARA SAGRADA



Two-thirds Actual Size

'Alaxa' is prepared from matured selected bark of the true Cascara Sagrada

'Alaxa' embodies the results of specialised research on Cascara by B. W. & Co.

'Alaxa' is quite distinct from feeble, bulky mixtures of flavouring Syrups with Extract of Cascara.

'Alaxa' is not an extract; contains no extract.

'Alaxa' is refined and elegant to the eye, pleasant to the palate, and sure in action.

'Alaxa' may be prescribed as a laxative liqueur for patients who need a regular peristaltic stimulant.

'Alaxa' is supplied to the Medical Profession in bottles of 4 fluid ounces at 2/- per bottle.

BURROUGHS WELLCOME & CO., LONDON (ENG.)

Branches: NEW YORK MONTREAL SYDNEY
CAPE TOWN SHANGHAI

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CARNRICK'S
"LIQUID PEPTONOIDS"

BEEF, WHEAT, and MILK, PREDIGESTED by ENZYMES.

ITS CHARACTER

A palatable, *mildly stimulating*, auxiliary fluid food, ready for immediate administration.

ITS APPROXIMATE NUTRITIVE CONTENT.

Proteids (peptones and propeptones), 5·25 %; Carbohydrates (lactose, maltose, dextrose) 13·3 %; Ash, 0·95 %.

ITS POSITIVE ADVANTAGES.

Immediate and Complete Availability of Food Content.
Prompt Restorative and Sustaining Properties.
Distinct Peptogenic Effect.

ITS NEGATIVE ADVANTAGES.

Absence of Fermentable Material.
Lack of Unabsorbable Detritus.
Does not interfere with Medication.

ITS THERAPEUTIC FIELD.

Asthenic Infectious Diseases.
Auxiliary Food in Typhoid.
Emergency Nutro-Stimulant in Prostration.
Restorative Nutrient in Intestinal Disorders of Children.

ITS ADMINISTRATION.

A half to a tablespoonful at intervals, as directed by the physician. Children in proportion.

Samples & Literature will be sent Free of Charge to Physicians desiring the same by

CARNRICK & CO., Ltd., 24 & 25, Hart St., Bloomsbury, London.

62

MALTINE

WITH

COD LIVER OIL.

THIS well-known product grows in favour from year to year, as it is recognised that the principles on which its use is recommended are thoroughly substantiated in actual practice. The first aim has been to present the oil in as digestible a form as possible. For this purpose no better process could be adopted than the intimate incorporation of cod liver oil in such a menstruum as "MALTINE." "MALTINE" is in every way an admirable medium for cod liver oil.

It successfully masks the nauseous odour and taste, the combination constituting in the opinion of many physicians the only palatable form of the oil.

The method of incorporation is such that the oil is presented in a form capable of immediate assimilation, and its use neither occasions digestive embarrassment nor gives rise to "repeating." The beneficial effect of "MALTINE" WITH COD LIVER OIL in regard to increasing body-weight and improving nutrition compares very favourably with the results obtained from the plain oil. This may reasonably be ascribed to the greater digestibility of "MALTINE" WITH COD LIVER OIL and to the diastasic activity of the "MALTINE," as also to the assimilable reconstructive principles it contains, which, together with the Fat of the Oil, make up a complete, physiologically-proportioned Food.

In prescribing, please specify "MALTINE COMPANY."

THE MALTINE MANUFACTURING COMPANY, Limited,
24 and 25, HART STREET, BLOOMSBURY, LONDON,
Will be pleased to send Samples Free of Charge to Medical Men.

* * * * A 63

Any required quantity may be readily abstracted by raising the flap (A) and pulling the string.

(*See below*)

Pleated Compressed Dressings were **originated** and **introduced** by BURROUGHS WELLCOME & CO.

TRADE MARK **'TABLOID'** BRAND

PLEATED COMPRESSED

Gauzes

'TABLOID' ABSORBENT GAUZE
In packets of 3 yards, per dozen packets, 6/-

'TABLOID' BORIC GAUZE
In packets of 3 yards, per dozen packets, 7/6

'TABLOID' DOUBLE CYANIDE GAUZE (3%)
In packets of 3 yards, per dozen packets, 7/6

'TABLOID' IODOFORM GAUZE
In packets of 3 yards, per dozen packets, 15/-

'TABLOID' SAL ALEMBROTH GAUZE (1%)
In packets of 3 yards, per dozen packets, 7/-

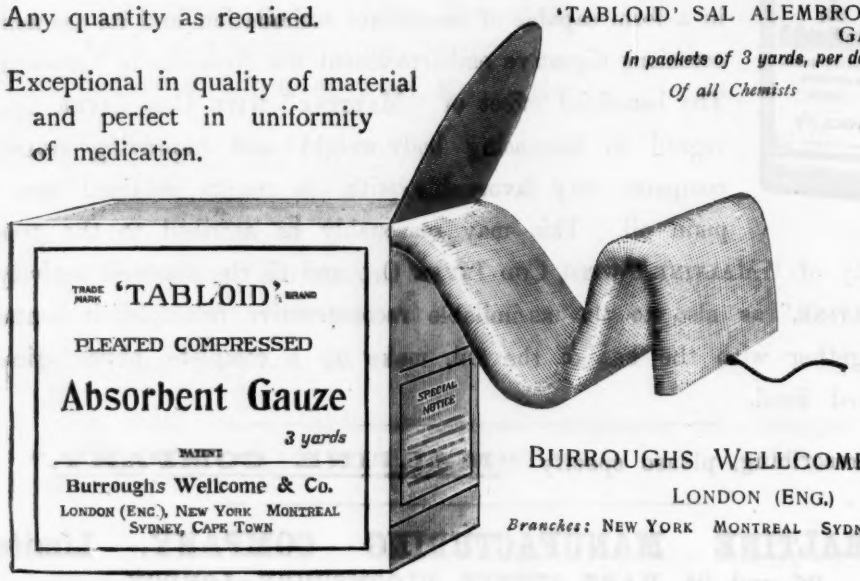
Of all Chemists

Ideal for the practitioner's pocket or handbag.

Compact and portable. Securely protected from contamination until the moment of use.

Any quantity as required.

Exceptional in quality of material and perfect in uniformity of medication.



ACTUAL SIZE

BURROUGHS WELLCOME & CO.
LONDON (ENG.)
Branches: NEW YORK MONTREAL SYDNEY CAPE TOWN

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Annotations

TRADE 'NIZIN' MARK

'NIZIN,' a zinc salt of sulphanilic acid, possesses distinctive advantages. It is stimulating, readily soluble in water, and, in the strengths of the solution in which it is recommended for use, is non-irritating and non-toxic.

Clinical reports demonstrate the great value of 'NIZIN' in acute gonorrhœa, and show its marked superiority to the salts of zinc hitherto in use. Urethral and vaginal injections of solutions of strength 2 to 6 grains to the ounce, or 0·15 to 0·6 gm. in 30 c.c., have proved very successful. The patient experiences no inconvenience and the duration of treatment is shortened. A solution of the same strength is an excellent stimulating antiseptic application for indolent ulcers, and is useful in various skin affections. Weaker solutions are employed in gonorrhœal ophthalmia, etc.

'SOLOID' 'NIZIN' affords a ready and convenient means of preparing fresh solutions for injections and for eye-lotions.

'SOLOID' 'NIZIN' is supplied to the Medical Profession as follows: gr. 2, in bottles of 100, at 1/- per bottle; gr. 20, in bottles of 25, at 2/- per bottle; 0·15 gm., in bottles of 100, at 1/- per bottle; 1 gm., in bottles of 25, at 1/8 per bottle.

'NIZIN,' in 1 oz., 4 oz. and 16 oz. bottles, at 1/-, 3/6 and 12/- each, respectively.

CALCIUM IODO-RICINOLEATE

Calcium Iodo-ricinoleate is a new salt containing a large proportion of iodine. It combines the therapeutic value of calcium and of the iodides. It is tasteless and odourless, and is absorbed from the bowel without irritation. Calcium Iodo-ricinoleate has proved very successful in syphilis, condylomata and other specific manifestations, whilst in stubborn cases of ulcers it has been reported to produce a healthy granulating surface. Various affections of the lymphatic and thyroid glands have been influenced favourably by the administration of this product.

'Tabloid' Calcium Iodo-ricinoleate is well tolerated by patients who cannot take potassium or sodium iodide.

'TABLOID' CALCIUM IODO-RICINOLEATE, gr. 3 (Capsule), is supplied in boxes of 50, at 3/- per box.

BLACK WASH

'Soloid' Brand Black Mercurial Lotion presents a convenient and ready means of preparing fresh lotion corresponding in all essential characters to Lotio Hydrargyri Nigra, P.B. In quantities suitable for immediate use, perfect suspension is obtained on shaking.

The 'Soloid' product is stable, and its compactness and portability offer great advantages over the old-time lotion.

'SOLOID' BLACK MERCURIAL LOTION is supplied in bottles of 25 at 8*d.* per bottle

SANDAL WOOD OIL

Sandal wood oil is a valuable stimulating expectorant, disinfectant and diuretic. It is employed in respiratory affections, with mucopurulent secretion, and has been found to relieve the cough of chronic bronchitis. It is, however, most largely prescribed for its action on the genito-urinary mucous membranes. When taken internally, its presence in the urine can be demonstrated within half-an-hour. It disinfects the urine and allays irritation of the bladder and urethra; it is sometimes given in chronic cystitis.

Some physicians recommend that the oil should be administered only in subacute and chronic cases of gonorrhœa; others have obtained good results from its use in the acute stages of inflammation.

The 'Tabloid' product, which contains the pure oil, obviates the nauseous taste of fluid preparations, and prevents eructation, pain in the back, and other discomforts which may follow the administration of impure sandal wood oil.

'TABLOID' SANDAL WOOD OIL, min. 5 (0·296 c.c.), (Capsule); and min. 10 (0·592 c.c.), (Capsule). Supplied to the Medical Profession, in boxes of 25 and 20, at 2/- and 2/6 per box, respectively

BURROUGHS WELLCOME & CO.
LONDON (ENG.) NEW YORK MONTREAL
SYDNEY CAPE TOWN SHANGHAI

THE ZODIACAL SIGN OF CAPRICORN
FROM A DRAWING OF THE XIII CENTURY

An antient physician writing on the influence of this sign on the human body, states:—

"The goat governeth leprosie, scurfs, and scabs in and about the knees and hamms, as also strains or fractures of those parts."

CONSTELLATION SERIES—No. 137

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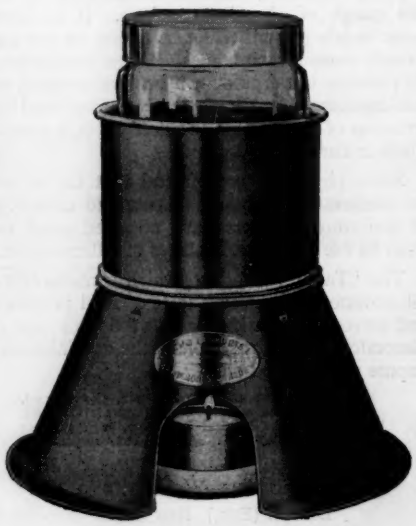
TRADE MARK. A.D.1715.

"SAUERIN"

A culture of vigorous strains of Bacillus Acidi Lactici in tablet form for internal —— use, and for the production of ——

"Soured" or "Curdled" Milk.



"Sauerin" Apparatus for the production of "Soured" or "Curdled" Milk.

The use of "Soured" or "Curdled" Milk is indicated in auto-intoxications associated with intestinal atony or obstruction, chronic dyspepsia, etc. It is used especially in colotis, enteritis, and infantile diarrhœa.

The Lactic Acid in "Soured" Milk stimulates the pancreatic and biliary functions, and a very mild laxative effect is usually observed. "Sauerin" is therefore employed as a cholagogue in hepatic congestion, gallstone, and as a disinfectant and stimulant to the intestinal tract.

"Sauerin" Tablets are put up in bottles of 50 Tablets at 2/6, and 100 Tablets at 4/6 each.

ALLEN & HANBURYS Ltd.

37, Lombard Street, London, E.C.

UNITED STATES: Niagara Falls, New York.
CANADA: Gerrard Street East, Toronto.
AUSTRALASIA: Bridge and Loftus Streets, Sydney.
SOUTH AFRICA: Castle Street, Cape Town.
411, Smith Street, Durban.

[See also pages 56, 57, 58, 59, 79, 95, & 102]

By Special Appointment to H.M. THE KING.

Gilbey's

Wines and Spirits.

For the Palace and the Cottage.

Gilbey's brands include the choicest varieties at £1 per bottle, as well as those of more moderate price, even as low as 1s.

Genuineness guaranteed.

Every bottle of Gilbey's is guaranteed absolutely genuine, is truthfully described on the label, and is secured by patent corks and capsules.

Organization . .
Vineyards . . .
Distilleries . . .

Gilbey's world-wide buying organization, their vineyards and distilleries, their extensive cellarage, and numerous Bonded warehouses, their careful system of bottling, and their complete arrangements for distribution through agents everywhere enable them to give consumers the choicest productions of every country at the lowest possible cost.

Value for Money.

Selected Brands

	Per Bottle.
Port Castle 84, Dry, 12 years old	3/-
Sherry Castle C, 9 years old	2/-
Claret, Chateau Loudenne, Gold Medal, Shipped from Gilbey's Vineyards	2/-
Scotch Whisky, Spey Royal Pure Malt, 10 years old	4/-
Irish Whisky, Grand JJ, 6 years old, John Jameson's	3/6
Cognac Brandy, L'or Extrait du Vin (5 Stars)	5/6

FRANCO-BRITISH EXHIBITION "GRAND PRIX" was awarded to each of these two Brands, which are obtainable at the leading Hotels and Restaurants in London.

FULL PRICE LIST ON APPLICATION.

Bottled and Guaranteed by W. & A. Gilbey

The Pantheon, Oxford St., London, W.

The "Lancet" on Cocoa.

Of the beverages in common use (Tea, Coffee & Cocoa), Cocoa is the best, because—

1. It is not a mere stimulant; it is also a true food.
2. Its stimulant value is similar to that of beef tea, and its nutritive value bears comparison with that of milk.

Of test cocoas bought in the open market, Van Houten's proved to be the best; because—

1. It is the most finely sub-divided, leaving no sediment in the cup.
2. It is the most soluble and perfectly miscible, consequently the most economical in use.
3. It is the most readily digested in the gastric juices.
4. It contains the maximum proportion of the proximate principles of food.

These facts, **elicited by unbiassed scientific investigation (vide "Lancet," Jan. 7th and Feb. 4th, 1905)** place Van Houten's Cocoa in the front rank of modern dietetic preparations.

It is quickly absorbed in the stomach, leaving no undigested irritant residue, and is therefore pre-eminently suitable for invalids.

VAN HOUTEN'S COCOA.

BROMURAL

(alpha-monobrom-isovalerianyl-urea)

Though BROMURAL creates a quiet state of the nerves whereby the necessary restful sleep is attained, it cannot be given in lieu of the direct and promptly-acting hypnotics, but simply as a harmless

Powerful Nerve Sedative

As such its action supersedes many times that of the Bromides without showing the slightest injurious by- or after-effects. It is especially efficacious in all forms of nervous excitability and insomnia so frequently associated with mental overwork, hysteria, and nervous dyspepsia. It is also prescribed in Children's practice. Bromural is quickly eliminated from the body and therefore its effects last only for a few hours.

DOSE: 10 grains as a hypnotic before bedtime; 5 grains several times a day as a sedative.

STYPTOL

An opium derivative which has proved to be a more reliable and more efficient drug in the various forms of uterine hæmorrhage than hydrastis, hamamelis, ergot, &c. It has proved especially effective in cases of severe

Menorrhagia and Dysmenorrhœa

It is also beneficial in metrorrhagia, threatened abortion, after operative measures, in climacteric hæmorrhage, and in new growths. It relieves pain and prevents inflammation, and is free from any injurious action on the heart or the digestive apparatus. As it never causes contractions, it can be administered with safety during pregnancy.

DOSE: 2-3 tablets (½ grain each) ter die.

Samples and Literature on application. **KNOLL & CO., 8, Harp Lane, London, E.C.**

WRIGHT'S COAL TAR INHALER AND VAPORIZER.

For Whooping Cough, Croup, Bronchitis, Influenza, and all complaints of the Respiratory Tract.

To successfully employ Coal Tar in the treatment of diseases of the respiratory system the need is felt of some preparation whereby its active principles can be applied in the form of a vapour.

This need has now been met in **Wright's Coal Tar Inhaler and Vaporizer.**

By means of this simple appliance a carefully regulated stream of **Antiseptic Tar Vapour** can be obtained, combined with pleasantly - scented essences, themselves antiseptic. It affords a ready means of securing a direct contact of the vapour with the air passages and acts as a powerful disinfectant and germicide in all diseases where trouble arises from bacilli, &c. The vapour may also be used for general disinfecting purposes.

Write for particulars, &c., to—

WRIGHT, LAYMAN & UMNEY, LTD.,

PROPRIETORS OF

Wright's Coal Tar Soap,

48, SOUTHWARK ST., LONDON, S.E.

Retail Price, complete with supply of Vaporizing Liquid and 2 Absorbent Blocks, 3s. 6d. each.

The Vaporizing Liquid, 9d. per bottle.

Absorbent Blocks (one block lasts about 12 months) in tin box, 4d. each.

EXTRACT OF RED BONE MARROW

A Food of the Highest Nutritive Value.

EXTRACT OF RED BONE MARROW

is rich in the elements that make blood and build tissue. Its palatability renders it acceptable to the most delicate stomach. Especially beneficial in Tuberculous cases.

Specify ARMOUR'S as there are imitations

Sample and Literature on application to

ARMOUR & COMPANY, LTD.,

Atlantic House, Holborn Viaduct, London, E.C.

LISTERINE

The standard American antiseptic for internal and external use.

Awarded Gold Medal (Highest Award) Lewis & Clark Centennial Exposition, Portland, 1905; Awarded Gold Medal (Highest Award) Louisiana Purchase Exposition, St. Louis, 1904; Awarded Bronze Medal (Highest Award) Exposition Universelle de 1900, Paris.

The word Listerine assures to the Medical Profession a non-poisonous antiseptic of well proven efficacy; uniform and definite in preparation, and having a wide field of usefulness.

Listerine represents the maximum of antiseptic strength in the relation that it is the least harmful to the human organism in the quantity required to produce the desired result; as such, it is generally accepted as the standard antiseptic preparation for general use, especially for those purposes where a poisonous or corrosive disinfectant can not be used with safety. It has won the confidence of medical men by reason of the standard of excellence (both as regards antiseptic strength and pharmaceutical elegance), which has been so strictly observed in its manufacture during the many years it has been at their command.

The success of Listerine is based upon merit, i.e., the best advertisement of Listerine is—Listerine.

Lambert Pharmacal Company,

St. Louis, U.S.A.

¶ In combating serious illness, it is doubly important to be assured that the patient is supplied with genuine Listerine, as the substitutes sometimes offered by the trade are generally of undetermined antiseptic strength, and too often worthless for the purpose for which they are required.

℞

Capsul.
Ol. Santal. Flav.

(SAVARESSE)

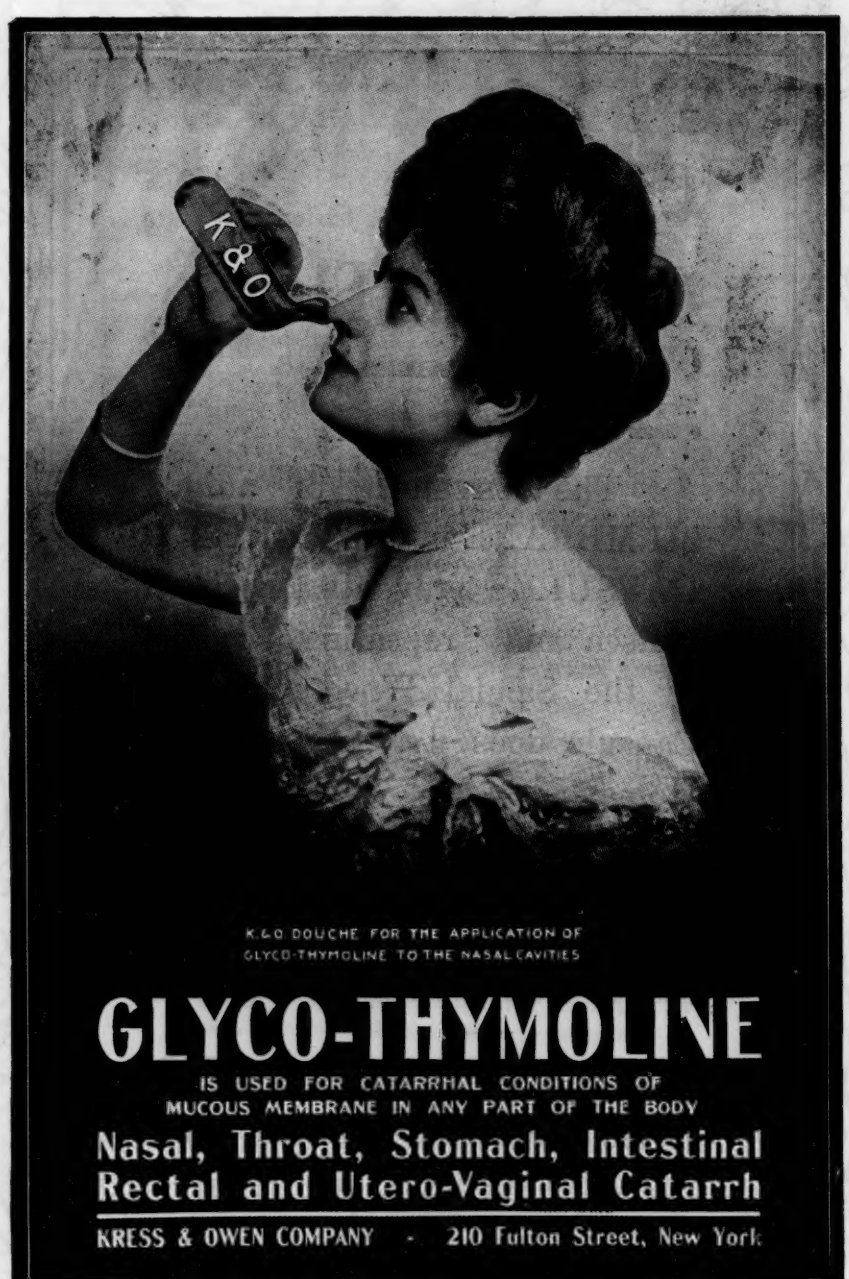
Two to be taken
3 times a day.

The envelope of animal MEMBRANE in SAVARESSE'S CAPSULES prevents the usual nausea and "repeating" caused by the Sandal Wood Oil: the Capsule does not burst in the stomach.

Each package contains 24 × 10-minim capsules.

The oil in **SAVARESSE'S CAPSULES** being distilled by ourselves, Physicians may rely upon its absolute purity, and look for a definite result at a reasonably early date.

EVANS SONS LESCHER & WEBB,
LIMITED,
60, BARTHOLOMEW CLOSE, LONDON. | 56, HANOVER STREET, LIVERPOOL.



K&O DOUCHE FOR THE APPLICATION OF
GLYCO-THYMOLINE TO THE NASAL CAVITIES

GLYCO-THYMOLINE

IS USED FOR CATARRHAL CONDITIONS OF
MUCOUS MEMBRANE IN ANY PART OF THE BODY

Nasal, Throat, Stomach, Intestinal
Rectal and Utero-Vaginal Catarrh

KRESS & OWEN COMPANY - 210 Fulton Street, New York

Sole Agents for Great Britain. THOS. CHRISTY & CO., 4—10 & 12 Old Swan Lane, London, E. C.

CERTAIN as it is that a single acting cause can bring about any one of the several anomalies of menstruation, just so certain is it that a single remedial agent—if properly administered—can effect the relief of any one of those anomalies.

¶ The singular efficacy of Ergoapiol (Smith) in the various menstrual irregularities is manifestly due to its prompt and direct analgesic, antispasmodic and tonic action upon the entire female reproductive system.

¶ Ergoapiol (Smith) is of special, indeed extraordinary, value in such menstrual irregularities as *amenorrhea, dysmenorrhea, menorrhagia* and *metrorrhagia.*

¶ The creators of the preparation, the Martin H. Smith Company, of New York, will send samples and exhaustive literature, post paid, to any member of the medical profession.

¶ The same can also be procured from the Sole British Agents **Thomas Christy & Co.**, 4 to 12 Old Swan Lane, Upper Thames Street, London, E.C.

SALIPYRIN

In the Influenza Epidemics during the last 14 years over
100 Million doses of Salipyrin
have been prescribed as the most effective and reliable

REMEDY FOR INFLUENZA

Colds, Rheumatism, Neuralgia.

A practically harmless drug with no cardiac influence. Free from by- or after-effects.

DOSE: 15 grains 2–3 times daily.

Retail: Tubes of 12 Tablets, **1/-.**

Samples and Literature willingly supplied.

GONOSAN

The active resin of Kava-kava dissolved in pure East Indian Sandalwood Oil.
The best of all Balsams for the internal treatment of

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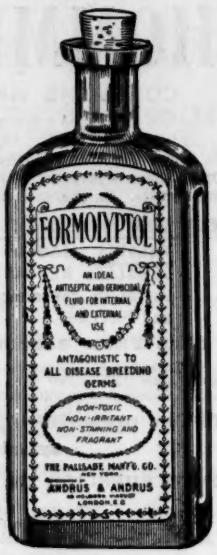
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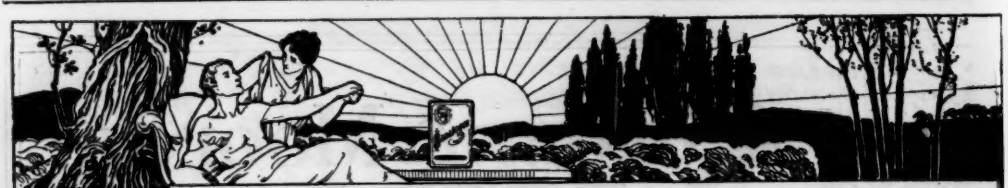

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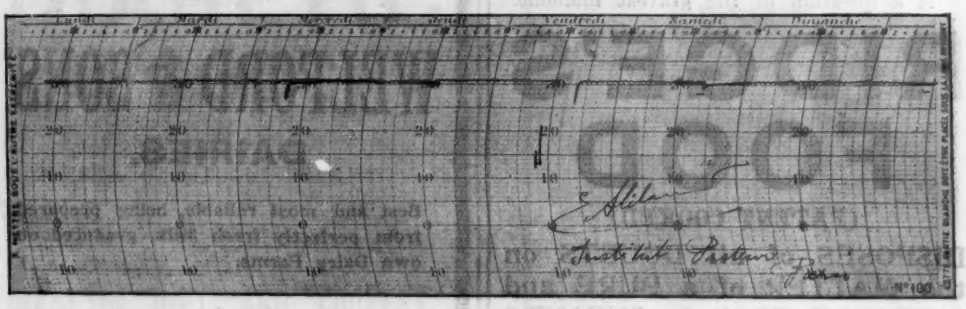

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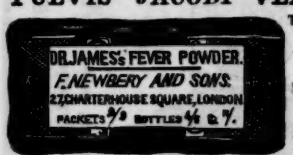

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In a very able article by the "Lancet" Special Commissioner in the "Lancet" of October 24th, 1908, appears the following information about OXO and NURSING OXO as restoratives and nutrients.

The article is most interesting to medical men. It covers 12 pages of the "Lancet," and reports most fully the result of the investigations of the "Lancet" Special Commissioner who visited the OXO Cattle Farms and Factories. A copy will be sent free on request.

The "Lancet" says:—

".....analysis does show clearly enough that in the process of extraction a certain amount of hydrolytic action takes place and that therefore some of the albumin of the meat is converted into soluble proteins—viz., albumose and peptone—which have the same nutritive value as meat. In some instances these amount in extract of meat to nearly 20 per cent., or twice the quantity of creatinine, the chief base present. Now in the presence of the powerful gastric excitants which the extractives are admitted to be, apart from the fact that the albumoses and peptones are capable of playing the part in nutrition exhibited by proteins, a well-prepared beef extract must be, so far as its nutritive contents go, a very rapid and powerful restorative and nutrient. It has even been asserted that albumose and peptone do not simply diffuse through the intestinal wall, but are taken up by the lining membrane and transformed by it as a result of the vital activity of its cells into serum albumin. The fact, moreover, that the extractives of meat are the most powerful excitants of gastric secretion that we possess justifies the addition as in "Oxo" of dry beef powder to the extract, for although it is true that this addition represents but a comparatively small measure of beef, yet the presence of extractives is calculated to secure the complete digestion of this amount. The assistance to assimilative power means that less meat is needed. As will be seen from the analytical results the average amount of *dry* beef powder added is from 5 to 6 per cent. Inasmuch as raw meat contains at least 75 per cent. of water the addition represents from 20 to 24 per cent. of raw meat. "Nursing Oxo" contains a similar addition of dry beef powder and besides about 25 per cent. of albumose, so that its nutrient value is considerable, especially having regard to the very material assistance given by the extractives to the digestive process. It will be readily understood also why milk or other comparatively tasteless food to which some extract of meat has been added should prove to be a powerful food and restorative. There is no constituent in milk which is calculated to excite the gastric secretions, and hence the addition of the stimulating extractives of beef is a decided dietetic advantage, especially for the sick and poorly nourished.

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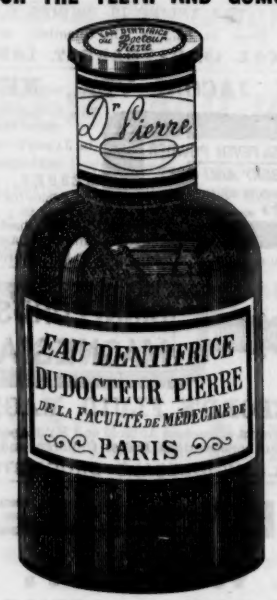

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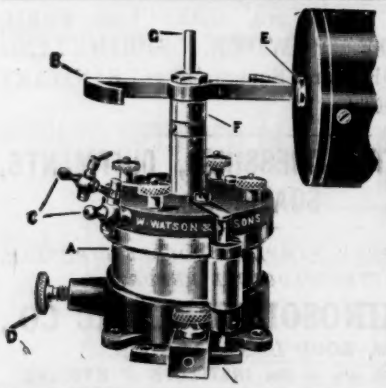

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For further particulars apply to ROBERT J. BLAND, Secretary, Royal London Ophthalmic Hospital, City-road, E.C.

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VINCENT SQUARE, WESTMINSTER.

POST-GRADUATE STUDY.

The following Classes will be held by Dr. Ralph Vincent at the Hospital on Tuesdays, Thursdays, and Fridays, from 3.30 to 5 P.M.

Tuesday, Jan. 19th.—Introductory demonstration in Lecture Theatre. Experimental work in Research Laboratory.
Thursday, Jan. 21st, and Friday, Jan. 22nd.—Experimental work in Research Laboratory.
Tuesday, Jan. 26th.—Demonstration in Lecture Theatre on the Principles of Substitute Feeding as Applied to Healthy Infants.
Thursday, Jan. 28th, and Friday, Jan. 29th.—Clinical demonstrations of the Methods of Dietetic Adjustment in, and Treatment of, the Disorders and Diseases of Nutrition in Infants.

The Fee for the Course is One Guinea, which includes the use of all apparatus, &c.

The Course will be repeated in February as follows:—Tuesday, Feb. 9th; Thursday, Feb. 11th; Friday, Feb. 12th; Tuesday, Feb. 16th; Thursday, Feb. 18th, and Friday, Feb. 19th.

The Classes are strictly limited to qualified Medical Practitioners.

ALFRED J. SMALL, Secretary.

Reuben Harvey Memorial Prize.

Notice is hereby given that the Ninth Award of this Triennial Prize will be made on July 1st, 1909.

The Competition for the Prize is open to all Students of the various Schools of Medicine in Dublin which are recognised by the Medical Licensing Bodies in Ireland, and also to Graduates or Licentiates of these Bodies of not more than three years' standing at the time of the award.

The Prize, value £25, will be awarded to the writer of the best Essay, on a subject to be selected by the Candidate, evidencing original research in Animal Physiology or Pathology: the Essay to be illustrated by drawings or preparations.

The Essays, bearing fictitious signatures, are to be lodged with the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin, on or before June 1st, 1909.

JAMES CRAIG, M.D. Univ. Dubl.,
Fellow and Registrar, R.C.P.I.
JOHN BARTON, M.D. Univ. Dubl.,
Fellow and Secretary to Council, R.C.S.I.

Hospital for Diseases of the Throat,

GOLDEN SQUARE, LONDON, W.

CLINICAL INSTRUCTION.—Clinical Instruction in the Diagnosis and Treatment of Disease is given daily in the Out-patient Department from 2.30 to 5 P.M., on Tuesdays and Fridays from 6.30 to 9 P.M., and on Mondays at 9.30 A.M. Major operations are performed on Tuesdays, 9.30 A.M.; Wednesdays, 10 A.M.; Thursdays, 10 A.M.; Fridays, 10.15 A.M. and 2 P.M.; and Saturdays, 9.30 A.M. Minor operations are performed daily (except on Mondays) at 9.30 A.M. The Hospital contains 48 beds for In-patients. There is an annual Out-patient attendance of nearly 50,000. Practitioners and Medical Students are admitted to the Practice of the Hospital at a fee of 5 guineas for three months, 7 guineas for six months, or 10 guineas for Perpetual Studentship. Each course may commence at any date. Special terms are granted to Medical Men in actual practice who can only attend the Hospital once or twice weekly. From amongst the Students, Junior Clinical Assistants are selected whose duty it is to assist the member of the staff to whom they are appointed. Students are also eligible as Senior Clinical Assistants (4, on whom considerable responsibility falls.

A systematic course of Lectures will be given on Mondays and Thursdays at 5.30 P.M. on Diseases of the Pharynx and Larynx, commencing on Jan. 19th and finishing on March 11th, 1909.

A Syllabus of these Lectures can be obtained from the Secretary of the Hospital. They are free to Medical Men and Students on presentation of their cards. CHARLES A. PARKER, Hon. Med. Sec.

St. Mary's Hospital Medical School,

Paddington, W.
(University of London.)

The Second Term of the WINTER SESSION will commence on TUESDAY, JAN. 5th, 1909. Students joining at this time may compete for Entrance Scholarships in September next.

The Medical School occupies an exceptional position in the West-end of London.

Courses of instruction are provided for the ENTIRE MEDICAL CURRICULUM for the Degrees of the Universities, for the Diplomas of M.R.C.S., L.R.C.P., and for the Government Medical Services.

The Courses for each part of the curriculum will be resumed on Jan. 5th, and students may begin to prepare for any one of the examinations on that date.

Six Entrance Scholarships in Natural Science, value £145 to £25, will be open for competition in September next.

The Athletic Ground (eight acres in extent) is situated at N. Kensington and can be reached in twenty minutes from the Hospital.

For Calendar of the School apply to the Dean or Secretary.

City of London Lying-in Hospital

AND MIDWIFERY SCHOOL,
City-road, E.C.

MEDICAL PUPILS admitted to the Practice of the Hospital. Every opportunity afforded of seeing Obstetrical Complications and Operative Midwifery.

Certificates awarded as required by the various examining bodies Pupils trained for Midwives and Monthly Nurses. Special preparation for Examination of Central Midwives Board.

For rules, fees, &c., apply, R. A. OWTHWAITE, Secretary.

Hospital for Consumption and

DISEASES of the CHEST, Brompton.

WINTER SESSION, 1908-9.

LECTURES and DEMONSTRATIONS, Wednesdays, 4 P.M.

Nov. 18th.—Angina Pectoris—Sir R. Douglas Powell, Bart., M.D., K.C.V.O.
Nov. 25th.—Certain Heart Cases—Dr. Maguire.
Dec. 2nd.—Pneumothorax—Dr. Horton-Smith Hartley.
Dec. 9th.—Cases from the Wards—Dr. Hector Mackenzie.
Dec. 16th.—The Cardio-Vascular System in Cases of Pulmonary Tuberculosis—Dr. R. A. Young.
Jan. 13th, 1909.—Difficult Empyemata—Mr. Stanley Boyd.
Jan. 20th.—Occult Cardiac Hypertrophy—Dr. Batty Shaw.
Jan. 27th.—Cases from the Wards—Dr. Habershon.
Feb. 3rd.—Bronchiectasis—Dr. Perkins.
Feb. 10th.—Mediastinal Tumours—Dr. Bosanquet.

The Lectures are free to all qualified Medical Practitioners and to Students of Medicine. J. J. PERKINS.

CENTRAL LONDON OPHTHALMIC HOSPITAL,

GRAY'S INN ROAD, W.C.

Classes of Instruction in the following subjects will be held during the latter half of the Winter Session.

Use of the Ophthalmoscope, commencing Jan. 6th, at 8 o'clock. Fee £2 2s.		Mr. Archer, Mr. Wells, and Mr. Mayou.
Errors of Refraction, commencing Jan. 29th, at 4 o'clock. Fee £1 1s.		Mr. Ernest Clarke.
* Operative Surgery	Fee £2 2s.	Mr. Ilbert Hancock.
* Pathology of the Eye	Fee £2 2s.	Mr. Mayou.
* X-Ray Instruction	Fee £1 1s.	Mr. Mayou.

* The dates of these Classes will be arranged to suit the convenience of those wishing to attend.

The post of Clinical Assistant is open to both men and women, who must be qualified and registered practitioners.

A composition fee of £5 5s. will entitle students to a Perpetual Ticket, and £3 3s. to Three Months' Hospital Practice. Either fee will admit students to the Classes on "The Use of the Ophthalmoscope" and "Errors of Refraction."

For further particulars apply to the Dean.

DIPLOMA IN PUBLIC HEALTH.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

DEPARTMENT OF HYGIENE AND PUBLIC HEALTH.

Professor—HENRY KENWOOD, M.B., D.P.H., F.C.S., Medical Officer of Health and Public Analyst, Borough of Stoke Newington, &c.
Demonstrator—F. N. KAY-MENZIES, M.D., M.R.C.P., D.P.H.

THE LABORATORIES, WHICH HAVE JUST BEEN ENLARGED, ARE OPEN DAILY FROM 10 TO 5 (SATURDAYS 10 TO 1) FOR PRACTICAL INSTRUCTION AND RESEARCH.

The next Course begins in January.

Weekly Demonstrations of Sanitary Appliances and Excursions to places of Public Health interest are undertaken.

Special arrangements are made to suit the convenience of those engaged in practice.

A Course of Bacteriological Instruction for Public Health Students is given by D. N. NABARRO, M.D., B.Sc., D.P.H., under the direction of Professor SIDNEY MARTIN, M.D., F.R.S.

Particulars may be obtained on application to
WALTER W. SETON, M.A., Secretary.
University College, Gower-street, W.C.

UNIVERSITY EXAMINATION POSTAL INSTITUTION.

OFFICES—17, RED LION SQUARE, HOLBORN, LONDON, W.C. Manager—Mr. E. S. Weymouth, M.A. (Lond.).
(LATE 27, SOUTHAMPTON ST., STRAND.)

Postal or Oral preparation for all Medical Exams. ***16 Medical Tutors, including 9 Gold Medallists.***

2800 Successes for various Examinations. **RECENT SUCCESSES.** *List on application.*

M.D. (Lond.), 1901-8: 118, including 7 Gold Medallists (**3** during 1907-8).
M.S. (Lond.): Gold Medal Four Times obtained. *Also Private Tuition for Medical Preliminary.*
INTER. M.B. (Lond): 19. M.B., B.S., 1906-8, **31.**
D.P.H. (various) during 1906-8, **34. M.D. Durham (for Practitioners):** 1900-8: **26.**
F.R.C.S. (Eng., Edin., Ireland): 19. Primary Fellowship (Eng.), during 1907-8, **12.**
R.A.M.C. Entrance: 3 entered 1908: all successful. Promotion 1906-7. all **16** successful.
I.M.S., M.B., B.S. (Cantab. &c.), R.N., CONJOINT, M.R.C.P., M.D. (R.U.I.), and other successes.

Oral Tuition; Postal Courses; Oral Classes; Private Tuition; also Laboratory, Museum, Microscope and Clinical Work.

King's College, London.
(UNIVERSITY OF LONDON.)

The SPECIAL CLASS for the LONDON UNIVERSITY MATRICULATION, under C. D. Webb, M.A., B.Sc., recommences Monday, January 11th.—Apply to the Secretary, King's College, Strand, W.C.

The Middlesex Hospital Medical SCHOOL.

PRIMARY F.R.C.S.

The Special Tutorial Classes for the Primary F.R.C.S. Examination in May will commence on January 5th and will be held at least three times a week and daily before the examination.

Anatomy... ... ... Dr. J. Cameron.
Physiology ... ... Dr. Strickland Goodall.

Fees 4 Guineas each Class.

J. STRICKLAND GOODALL, Sub-Dean.

POST-GRADUATE STUDY.

London School of Clinical Medicine.
FOR QUALIFIED PRACTITIONERS ONLY.

At the SEAMEN'S HOSPITAL (Dreadnought, Greenwich), to which are affiliated for teaching purposes the following Hospitals:—
WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.
GENERAL LYING-IN HOSPITAL, York-road.
BETHLEM HOSPITAL.

THREE SESSIONS ANNUALLY, commencing 15th January, 1st May, and 1st October.
Classes in OPERATIVE SURGERY can be formed at any time.
Courses of one month only may be taken in Clinical work.
For further particulars and complete Syllabus apply to C. C. CHOYCE, the Dean.

The Royal Dental Hospital and LONDON SCHOOL OF DENTAL SURGERY,
Leicester-square, London, W.C.

The Royal Dental Hospital was founded in 1858 at Soho-square, and in March, 1874, was removed to Leicester-square. The increased demands made on it by the public and the rapid growth of the Medical School necessitated the erection of an entirely new building. The new Hospital was opened in March, 1901, and is complete in every detail with modern appliances, and the School portion of the building thoroughly equipped for teaching purposes. The clinic of the Hospital is unrivalled. In 1907 104,745 operations were performed.

The following SCHOLARSHIPS and PRIZES are open for competition:—
The ENTRANCE SCHOLARSHIP, of the value of £20, awarded in October.
The SAUNDERS SCHOLARSHIP, of the value of £20.
The STORER-BENNETT RESEARCH SCHOLARSHIP, of the value of £50.
The ALFRED WOODHOUSE SCHOLARSHIP, of £35.
The ROBERT WOODHOUSE PRIZE, of the value of £10.

INSTRUCTION IN MECHANICAL DENTISTRY.

The instruction in Mechanical Dentistry as required for the Dental Curriculum can be obtained at this Hospital.

Further particulars concerning Fees, Scholarships, &c., can be obtained on application to

THE DEAN.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,
LEICESTER-SQUARE, W.C.

CHESTERFIELD LECTURES.

These Lectures (founded in 1895 in connexion with a Silver Medal presented by the Earl of Chesterfield to promote the Study of Dermatology) are FREE to medical practitioners on presenting their cards and to medical students who desire to attend regularly, and will be resumed by Dr. MORGAN DOCKRELL, at 49, Leicester-square, on Thursday evening, January 7th, at 6 P.M. After each Lecture demonstrations will be given on special cases, followed by Clinical instruction up to 8 o'clock on patients presenting themselves in the Out-patient Department.

1909. SYNOPSIS OF LECTURES.

Jan. 7th. Bullous and Vesicular Eruptions: I., Urticaria; II., Pemphigus; III., Pompholyx; IV., Varicella.
,, 14th. Bullous and Vesicular Eruptions (*Cont.*): V., Herpes; VI., Zoster; VII., Dermatitis Herpetiformis.
,, 21st. Paratuberculides (due to Tuberculous Toxins): I., Macular; II., Papular; III., Pustular; IV., Pigmentary.
,, 28th. Syphilis: History and Primary Invasion (Constitutional and Local). Eruptions, Erythematous: (I., Macular; and II., Maculo-Papular).
Feb. 4th. Syphilis (*Cont.*): Papular (I., Miliary; II., Lenticular; III., Squamous; IV., Moist), Pustular and Tuberculous.
,, 11th. Treatment (Constitutional and Local in all its Forms).
,, 18th. Syphilis as it modifies other Eruptions of the Skin: Symptoms, Diagnosis, and Treatment.
,, 25th. Baldness: Its Causes and Treatment.
March 4th. Fungous Diseases of the Skin: I., Tinea Circinata; II., Tinea Imbricata; III., Tinea Versicolor; IV., Erythrasma; V., Actinomycosis; VI., Madura Foot.
,, 11th. Ul-erythema: I., Centrifugum; II., Telangiectic; III., Ophryogenes.
,, 18th. On the Treatment of Skin Diseases.

N.B.—Special Demonstrations will be announced each week on particular cases in addition to those occurring in the Out-patient Department.

GEO. A. ARNAUDIN, Secretary-Superintendent.

PROFESSIONAL PRELIMINARY EXAMINATIONS.

The College of Preceptors holds

Examinations for Certificates recognised by the Board of Education, the Incorporated Law Society, the General Medical Council, the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, four times a year, viz., in March, July, September, and December, in London and at provincial centres.

Regulations and entry forms may be obtained on application to the Secretary. C. R. HODGSON, B.A., Secretary.

College of Preceptors, Bloomsbury-square, London, W.C.

CHARING CROSS HOSPITAL MEDICAL COLLEGE.
(University of London.)

The College is complete in all Departments.

SPECIAL TEACHERS
for all Preliminary and Intermediate Subjects.

EIGHT ENTRANCE SCHOLARSHIPS
are awarded annually of the aggregate value of **£430.**
Twenty-two Hospital and Teaching **APPOINTMENTS** are made yearly

For Prospectus and details of fees apply to
FREDERICK C. WALLIS, Dean.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

ANATOMY.

A Special Course in Anatomy, suitable for candidates for the Primary Fellowship Examination of the Royal College of Surgeons, began in December. Intending candidates can join at once. The class meets daily. Fee £6 6s.

PRACTICAL PHYSIOLOGY.

A short Course on Practical Physiology, suitable for candidates for the Primary Fellowship Examination of the Royal College of Surgeons and for the Intermediate Examination in Medicine, or the B.Sc. Pass Examination of the University, will commence about the end of January, and will be conducted by Mr. G. C. Mathison. The class will last for six weeks and will meet four days a week. Fee £5 5s.

Students desirous of taking this Course should send their names to the undersigned not later than January 12th.

WALTER W. SETON, M.A., Secretary.
University College London, (Gower-street, W.C.).

WEST LONDON POST-GRADUATE COLLEGE.

WEST LONDON HOSPITAL, Hammersmith-road, W.—The Hospital Practice is reserved exclusively for Post-Graduates, and a Reading- and Writing-room, in addition to a Lecture-room, is provided for them. The fee for one month's Hospital Practice is £3 3s. A Special Class in Bacteriology is held each month.
Prospectus will be sent on application to L. A. BIDWELL, Dean.

North-East London Post-GRADUATE COLLEGE

PRINCE OF WALES'S GENERAL HOSPITAL, TOTTENHAM, N.

The practice of the Hospital is limited to medical practitioners. Practical Classes in Clinical Subjects, including Bacteriology, are arranged. The fee for one month, is 2, for three months, 3, and for a perpetual ticket 5 guineas. Prospectus, &c., may be obtained from A. J. WHITING, M.D., Dean.

DIPLOMA IN PUBLIC HEALTH.

London Hospital Medical College.
(UNIVERSITY OF LONDON.)

The Classes commence January 7th.

HYGIENE.

Hygiene by J. C. Thresh, M.D. Vic., D.Sc., D.P.H., Medical Officer of Health to the Essex County Council.

BACTERIOLOGY.

Bacteriology by W. Bulloch, M.D. Aberd.

CHEMISTRY, &c.

Chemistry and Physics, Hugh Candy, B.A., B.Sc. Lond.

The Laboratories are open daily from 10 to 4 (Saturdays 10 to 1).

Special arrangements are made for those engaged in practice.

An inclusive fee covers Laboratory work, Bacteriology and Sanitary work, with Medical Officer of Health (in accordance with the latest regulations).

Turner-street, Mile End, E. MUNRO SCOTT, Warden.

London Hospital Medical College.
(UNIVERSITY OF LONDON.)

SPECIAL CLASSES.

Special Classes are held in the subjects required for the Preliminary Scientific M.B. London Examination.

Botany and Zoology.—By G. P. Mudge, A.R.C.S., F.Z.S., and R. A. Buddicom, B.A. Oxon.

Chemistry and Physics.—By Hugh Candy, B.A., B.Sc.Lond., and O. W. Griffith, B.Sc.Lond.

Fee for the whole Course 10 guineas.

Special Classes are also held for the Intermediate M.B. London and Primary F.R.C.S., and other Examinations.

These Classes will commence on January 7th and are not confined to students of the Hospital.

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London Hospital Medical College.
(UNIVERSITY OF LONDON.)

124TH SESSION.

The Hospital is the largest in England. In-patients, 14,288; out-patients, 228,279; accidents, 18,702; operations under anæsthetics, 4121. Qualified appointments, 100 yearly. Dresserships, &c., 150 every three months.

Lectures and demonstrations commence on January 7th.

For prospectus and information as to residence, &c., apply personally or by letter to the Warden.

Turner-street, Mile End, E. MUNRO SCOTT, Warden.

F.R.C.S. PRIMARY AND FINAL.
London Hospital Medical College.
(UNIVERSITY OF LONDON).

Special Classes will be held for the next FELLOWSHIP EXAMINATIONS, commencing on Feb. 2nd.

FINAL CLASSES.—Surgical Anatomy, Dr. Wright. General Pathology and Bacteriology, Dr. Bulloch. Special Demonstrations, Surgical Pathology, &c., Mr. Furnivall, Mr. Rigby, Mr. Sherren, Mr. Lett, Mr. Howard. Operative Surgery, Mr. Dean.

PRIMARY CLASSES.—Anatomy, Mr. Howard. Physiology, Mr. Greenwood.

Fees for Final Classes, exclusive of Operative Surgery, £15 15s. for external Students, £10 10s. for full Students of the Hospital.

Fees for Primary Classes, £10 10s.

Turner-street, Mile End, E. MUNRO SCOTT, Warden.

DIPLOMA IN PUBLIC HEALTH.
UNIVERSITY OF CAMBRIDGE.

LECTURES and PRACTICAL INSTRUCTION in the subjects required will begin on the 15TH JANUARY, 1909, at the

UNIVERSITY LABORATORIES, DOWNING ST., CAMBRIDGE.

Hygiene—Dr. Anningson.
Practical Sanitary Administration—Dr. Anningson and the M.O.H. of Cambridge.
Bacteriology and Preventive Medicine—Dr. Graham-Smith.
Chemistry and Physics—Mr. J. E. Purvis, M.A.
Animal Parasites—Mr. A. E. Shipley, M.A., F.R.S.

Further particulars may be obtained from the above Lecturers at the University Laboratories, or from Dr. Anningson, Walthamsal, Barton-road, Cambridge.

COOKE'S ANATOMICAL SCHOOL.

LICENSED UNDER THE ACT. OPEN ALL THE YEAR ROUND.

Long Vacation Classes—Anatomy, Physiology, Surgery, &c., taught rapidly and practically. Dissecting rooms open 10-5 daily. Good supply of subjects for dissection; already dissected parts, models, &c. Special M.B. and F.R.C.S. Classes. Operations arranged for any time.

Apply, Mr. Knight, Handel-street, W.C.

Madame Aubert's English and FOREIGN GOVERNESS and SCHOOL AGENCY (est 1880), 133, Regent-street, London, W. — RESIDENT and DAILY GOVERNESSES (Finishing, Junior, Nursery), Lady Professors of Languages, Art, Music, Singing, Elocution, &c. Companions, Secretaries introduced. Schools recommended and all information gratis on receipt of requirements.

Medical Men. Several good Schools (Boys and Girls) offer Special Terms to above. Addresses and particulars (gratis) from the British and Foreign School Agency, 6, St. Anne's Passage, King-street, Manchester.

Triple Qualification, Edinburgh. — Special preparation, in Class, Privately, and by Correspondence for these examinations. Also for Fellowship Examinations of Royal College of Surgeons, Edinburgh, and M.D. Brussels. Resident Pupils received.—Address, Class Rooms, 7, Chambers-street, Edinburgh.

Medical Preliminaries. — London MATRICULATION.—Classes for Prel. Sci., Inter. Arts, B.A., and B.Sc. All Medical Preliminaries, Durham, Oxford, Cambridge, and other Examinations, Scholarships. Classes (small) can be commenced at any time. Private Tuition. Vacation Tuition.—Full prospectus on application to R. C. B. Kerin, B.A.Lond., First First-Class Hons. in Classics, Carlyon College, 55, Chancery-lane.

SUCCESSES.—London Univ., 1892-1908, 435; Medical Prel.m., 270; Previous and Responsions, 75; other successes, 430.

Hospital Scholarships, 9.

ROYAL ARMY MEDICAL CORPS.

The Class for the January Competition is now being held at 10 A.M.
Passmore Edwards Settlement,
Tavistock-place, W.C.

FELLOWSHIPS.

The Special Class for the March Examination of the Royal College of Surgeons, Edinburgh, will begin on Thursday, 21st January. Correspondence for March or June should be commenced at once.—Particulars from Dr. Knight, 7, Chambers-street, Edinburgh.

STAMMERING

And all SPEECH DEFECTS treated by MRS. EMIL BEHNKE, at 18, Earl's Court-square, S.W.
Also VOICE TRAINING for SPEAKERS and SINGERS.

"Pre-eminent success."—TIMES.

"I have confidence in advising speech sufferers to place themselves under the instruction of Mrs. Behnke."—Editor, MEDICAL TIMES.

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"Mrs. Behnke is well known as a most excellent teacher upon thoroughly philosophical principles."—THE LANCET.

"Mrs. Behnke has recently treated with success some difficult cases of stammering in Guy's. The method is scientifically correct and perfectly effective for those who are determined to conquer the defect."—GUY'S HOSPITAL GAZETTE.

"Mrs. Behnke's work is of the most scientific description."—THE MEDICAL MAGAZINE.

"Stammering, Cleft Palate Speech, Lisping," 1s. net (postage 1½d).

The Hospital for Sick Children, Great Ormond-street, W.C.—TRAINED NURSES can be had on application to the Matron. Telegraphic address, "Great," London Telephone, No. 2900 Holborn.

Middlesex Hospital Trained Nurses INSTITUTE.— Experienced NURSES can be immediately obtained for Medical and Surgical Cases from the Sister in Charge, No. 17, Cleveland-street, W. Telegraphic address: Skilful, London. Telephone Number: 5307 Gerrard.

St. John's House.—Trained and Ex-perienced Medical, Surgical, Maternity NURSES and MASSEUSES can be obtained by application, personally or by letter, to the Sister Superior, 12, Queen-square, Bloomsbury. Telephone: No. 5099 Central (P.O.). Telegraphic Address: "Private Nurses, London."

National Hospital Male Nurses' ASSOCIATION.—Fully trained MALE NURSES supplied at the shortest notice. All nurses hold the two years' certificate of training at the National Hospital for the Paralysed and Epileptic. Skilled Masseurs supplied. Apply to the Lady Superintendent, National Hospital, Queen-square, W.C. Telephone, 4594 Central.

Mental Nurses' Co-operation, for the Supply of Certificated MENTAL NURSES, Male and Female, 49, Norfolk-square, W.

The Co-operation has the approval and support of many Mental Specialists. All Nurses sent out are insured against accident.—Apply to the Lady Superintendent, Miss Jean Hastie.

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Queen Charlotte's Lying-in Hospital and MIDWIFERY TRAINING SCHOOL, Marylebone, N.W.—MEDICAL PUPILS admitted to the Practice of this Hospital. Unusual opportunities are afforded of seeing obstetrical complications and operative midwifery, upwards of three-fourths of the total admissions being primiparous cases.

CERTIFICATES AWARDED as required by the various Examining Bodies.

PUPILS TRAINED for MIDWIVES and MONTHLY NURSES. On being found competent each pupil is awarded a certificate of efficiency. Special preparation for examination of Central Midwives Board.

For rules, fees, &c., apply ARTHUR WATTS, Secretary.

The Registered Nurses' Society

(THE FIRST CO-OPERATION OF CHARTERED NURSES),
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EDINBURGH: 9, LEAMINGTON TERRACE.

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M. D. GOLD, *Sec.*

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Superior Trained MALE NURSES for Medical, Surgical, Mental, Dipsomania, Fever, and Travelling Cases supplied at a moment's notice, Day or Night. Skilled MASSEURS Supplied. Terms £1 11s. 6d. to £2 2s. and upwards. Nurses to receive their own fees. F. ROUSE WALSHE, Secretary

TELEPHONE { (LONDON)—538 PADDINGTON. (MANCHESTER)—4699 CENTRAL. (EDINBURGH)—2715 CENTRAL.

TELEGRAMS { "ASSUAGED, LONDON." "ASSUAGED, MANCHESTER." "ASSUAGED EDINBURGH."

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Well trained MALE NURSES, and Certificated MASSEURS, supplied at shortest notice day or night.

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W. GUTTERIDGE, *Superintendent.*

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THE LONDON ASSOCIATION OF NURSES, LIMITED.

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Hospital Trained Nurses, experienced in Private Nursing, can be obtained immediately for Medical, Surgical, Maternity, Mental, Massage, Fever, and all Infectious Cases. Also Male Nurses and Medical Rubbers.

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Telegraphic Address— "Firth's Association, London." Telephone— 1855 Gerrard.

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ARMY & NAVY MALE NURSES' CO-OPERATION.

Patroness—HER MAJESTY THE QUEEN.

The above Institution SUPPLIES Fully Trained Certificated MALE NURSES (Medical, Surgical, or Mental), TRAVELLING ATTENDANTS, MASSEURS, &c.

Address, SECRETARY, 47B, WELBECK STREET, LONDON, W.

The Co-operation is established to afford employment to Army and Navy Male Nurses of good character, and to secure for them the full remuneration for their work.

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Telegrams: "RESTORING, LONDON." Telephone: No. 2534 Mayfair.

GENERAL NURSING ASSOCIATION.

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ESTABLISHED 1862 at Henrietta Street, Covent Garden.

Thoroughly experienced Hospital-trained NURSES supplied at a moment's notice, being resident in the Home.

Also, specially trained NURSES for Mental and Nerve Cases.

Worked under the system of Co-operation.

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Founded 1891. Incorporated 1894.

Established to secure to Nurses the full remuneration for their work and to supply FULLY TRAINED HOSPITAL NURSES (Medical, Surgical, Mental, Maternity, Fever, Children's, Massage),

NURSES CO-OPERATION - LONDON -

To Work under Medical Supervision.

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Private Asylum for LADIES suffering from Mental and Nervous Disorders. The number of patients being limited, more individual care and attention can be given to their treatment. All the surroundings are as home-like as possible. Excellent train service, one hour from London. Nurses can be sent at any time.

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The House, pleasantly situated, stands in picturesque grounds of forty acres in extent, with a surrounding country noted for the beauty of its walks and drives. The climate is genial and bracing. Occupation, in-door and out-door amusements, and carriage and other exercise amply provided.

Terms range from 3 to 7 guineas per week, inclusive, according to requirements as to accommodation, special attendance, &c.

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For further particulars apply to the Medical Superintendent.

CAMBERWELL HOUSE.

33, PECKHAM ROAD, LONDON, S.E.

Telephone No., Hop 1037. Telegrams, "PSYCHOLIA, LONDON."

For the Care and Treatment of those of both Sexes suffering from Nervous and Mental Disorders.

Consists of separate Houses, lit by electricity and completely modernized, standing in twenty acres of picturesque grounds, including cricket and football field, tennis courts and croquet lawns. The Terrace Houses are quite separate from the rest of the Institution, and are specially adapted for the reception of mild and borderland cases, who can enter voluntarily.

The ordinary terms are 2 guineas a week. Patients can have separate sitting- and bed-rooms, with a special nurse, as well as the use of the general rooms, and a change to the seaside annexe at Walton-on-the-Naze.

For further particulars apply to the MEDICAL SUPERINTENDENT at the above address.

NEWLANDS HOUSE,

TOOTING BEC ROAD, TOOTING, S.W.

Nat. Telephone—524 STREATHAM.

A HOME LICENSED FOR THE CARE AND TREATMENT OF GENTLEMEN OF UNSOUND MIND.

Terms from £3 3s. a week, according to the nature of the case and the accommodation required.

The House stands in large grounds and overlooks Tooting Bec Common.

For further particulars apply to H. J. HIND, M.R.C.S., Resident Medical Superintendent.

THE WARNEFORD, OXFORD.

HOSPITAL FOR MENTAL DISORDERS.

President: The Right Hon. THE EARL OF JERSEY.

This Registered Hospital, for the Treatment and Care, at moderate charges, of Mental Patients belonging to the educated classes, stands in a healthy and pleasant situation on Headington Hill, near Oxford. The grounds and gardens are extensive, the internal appointments are comfortable and refined, and the premises are lighted by electricity. The utmost degree of liberty, consistent with safety, is allowed to the patients, and amusements and occupation are amply provided. Parties are sent, for change, to the seaside during summer. Voluntary boarders are also received for treatment.—For further particulars apply to the Medical Superintendent, Dr. NEIL.

HEIGHAM HALL, NORWICH.

Telephone ***For the Upper Classes only.*** 80 Norwich.

A Home for Ladies and Gentlemen suffering from **Nervous and Mental Ailments. Extensive pleasure grounds. Private Suites of Rooms** with special Attendants available. **Boarders taken without certificates. French Chef. Terms from 2 to 10 guineas weekly. Nurses sent for Patients.**

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MIDDLETON ST. GEORGE, near DARLINGTON, CO. DURHAM.

PRIVATE HOUSE FOR THE CARE AND TREATMENT OF LADIES AND GENTLEMEN SUFFERING FROM MENTAL DISEASES.

This House, which is situated in a healthy and pleasant country, has been recently erected from plans approved by the Commissioners in Lunacy and has been comfortably furnished throughout. Private rooms and special attendants are provided if required.

Terms to be had on application to L. HARRIS LISTON, M.D., Medical Superintendent.

CLARENCE LODGE

(Telephone: 494 Brixton).

CLARENCE ROAD, CLAPHAM PARK.

Stations: Clapham Road and Clapham Common.

A limited number of Ladies suffering from **Mental** and **Nervous Disorders** received for Treatment under a Specialist. Terms from £3 3s. a week. The house has 4½ acres of garden, tennis lawn, and winter garden. House at seaside for holiday parties.

Mental Nurses supplied for Home Nursing.

Illustrated Prospectus from Proprietress, Mrs. FLORENCE THWAITES, B.A.

Telephone— 5608 CENTRAL. *Telegraphic Address*— "ENVOY, LONDON."

ST. LUKE'S HOSPITAL FOR MENTAL DISEASES (200 Beds),

OLD STREET, LONDON.

(ESTABLISHED 1751.)

Admission gratuitous; or, by contribution to maintenance, from 15s. to 30s. per week.

CONVALESCENT HOME at Ramsgate. Voluntary Boarders (Ladies) are received at the Home without certificates.

TRAINED NURSES immediately obtained from the Hospital for Mental, Nervous, and Massage Cases.

Full particulars on application to the Secretary at the Hospital.

LONDON FEVER HOSPITAL.

ISLINGTON, N.

PATRON—His Majesty THE KING.

PRESIDENT—The Right Hon. Lord BALFOUR of BURLEIGH, K.T.

The Diseases admitted are Scarlet Fever, Diphtheria, Measles, and German Measles; also Typhoid when accommodation can be made available. The general ward fee is three guineas for the whole term of treatment. Private rooms three guineas a week. Patients who are willing to pay part at least of the cost of their illness rather than remain at home in infectious fever are encouraged to apply for admission here. 850 sufferers were treated here in 1907. No help is received from the rates by this Hospital.

Servants of Governors are treated free of charge. On application to the Secretary, with a medical certificate, a brougham ambulance will be sent. Applications can be made personally, or by letter, telegram, or telephone: 687 North. W. CHRISTIE, Secretary.

KINGSDOWN HOUSE

BOX, near BATH.

Telephone—No. 2, Box.

Licensed for the Treatment of Diseases of the Brain and Nervous System.

Terms moderate, for which apply to Dr. MACBRYAN, at the above, or No. 2, Bladud Buildings, Bath.

THE GRANGE, near ROTHERHAM.

A HOUSE licensed for the reception of a limited number of ladies of unsound mind. Both certified and voluntary patients received. This is a large country house with beautiful grounds and park, five miles from Sheffield. Station, Grange Lane, G.C. Railway, Sheffield. Telephone No. 34 Rotherham.

Resident Physician—GILBERT R. MOULD, L.R.C.P., M.R.C.S. Consulting Physician—CROCHLEY CLAPHAM, M.D., F.R.C.P.E.

CHEADLE ROYAL.

HOSPITAL FOR MENTAL DISEASES, CHEADLE, CHESHIRE.

This Hospital is in a retired part of the county, nine miles from Manchester and two miles from Cheadle and Cheadle and Hulme Stations, L. & N.W. Railway and Cheshire Lines.

The object of the Institution is to provide the most efficient means for the cure of mental diseases in those who belong to the upper and middle classes of society.

Many of the patients reside outside the Hospital in villas, in no way differing from ordinary dwelling houses in their internal arrangements and general surroundings, some of them being situated in the immediate neighbourhood and some on the Welsh Coast. These establishments give considerable opportunity for change of scene and locality, and the patients are in this way benefited in a very marked degree.

Voluntary Boarders are also admitted for treatment.

Arrangements are made when desired for patients to have private rooms or villas, and their own attendants, horses and carriages.

For terms and further information apply to the Medical Superintendent, W. SCOWCROFT, M.R.C.S., &c., at Cheadle, or he may be seen at 72, Bridge-street, Manchester, on Tuesdays, from 12 to 3, and Fridays, from 2 to 3. Telephone: 208 "Cheadle Hulme," 3594 "Manchester."

WONFORD HOUSE,
HOSPITAL FOR THE INSANE, near EXETER.

A REGISTERED HOSPITAL FOR THE UPPER AND MIDDLE CLASSES.

This Institution is situated in a beautiful and healthy locality, within a short distance of the City of Exeter.

There is comfortable accommodation at moderate rates, both in the Hospital itself and at Plantation House, Dawlish, a seaside residence on the South Devon Coast, affording more privacy, with the benefits of sea air and a mild salubrious climate.

Private Rooms and Special Attendants provided, if required.

Voluntary Patients or Boarders also received without certificates.

For terms, &c., apply to

P. MAURY DEAS, M.B., M.S. Lond.,
Resident Medical Superintendent.

FLOWER HOUSE,
CATFORD, S.E.

A Sanatorium of the highest class for the Treatment and Care of Gentlemen of Unsound Mind.

N.B.—Under the new Act voluntary boarders can be received on their own personal application.

Apply to the Medical Superintendent.

THE MOAT HOUSE,
TAMWORTH, STAFFORDSHIRE.

A HOME for NERVOUS and MENTAL CASES. Stations: L. & N West. and Mid. Railways.

The House stands in grounds of ten acres (within 5 minutes' drive of either station) and is devoted to the care and treatment of a few Ladies suffering from Nervous and Mental Affections, who enjoy the comfort, privacy, and occupations of home life. Voluntary patients are received without certificates. For terms, &c., apply to the Resident Proprietor, E. HOLLINS, M.A.Camb., J.P.

Barnwood House Hospital for MENTAL DISEASES, Barnwood, near Gloucester. Exclusively for Private Patients of the Upper and Middle Classes. This institution is devoted to the Care and Treatment of persons of both sexes at moderate rates of payment. The terms vary according to the requirements of the patients, who can have private rooms and special attendants, or be accommodated in Detached Villas and in the Branch Convalescent Establishment on the hills. Under special circumstances the rates of payments may be greatly reduced by the Committee. For further information apply to J. G. SOUTAR, M.B., the Med Supt.

STRETTON HOUSE,
Church-Stretton, Shropshire.

A Private HOME for the treatment of Gentlemen suffering from Mental Diseases. Bracing hill country. See "Medical Directory," p. 1953 Apply to Medical Superintendent. Telephone: 10, P.O. Church-Stretton

SPRINGFIELD HOUSE,
Near BEDFORD.

(Telephone No. 17.)

A PRIVATE ASYLUM for Mental Cases, established in 1837, surrounded by extensive grounds, reconstructed and modernised.

Terms from 3 guineas per week

(Including Separate Bedrooms for all Suitable Cases.)

For forms of admission, &c., apply to DAVID BOWER, M.D., as above, or at 5, Duchess-st., Portland-pl., W., Tuesdays, from 4 to 5.

A Vacancy for a Lady and a Gentleman.

PLYMPTON HOUSE,
PLYMPTON, S. DEVON.

This old-established Licensed House offers every advantage that experience can suggest for the care and treatment of Mental Cases.

For terms, &c., apply to the Resident Physician,

Telephone—No. 2, Plympton. Dr. ALFRED TURNER.

THE COPPICE, NOTTINGHAM.
HOSPITAL FOR MENTAL DISEASES.

President: The Right Hon. the Earl MANVERS.

This Institution is exclusively for the reception of a limited number of PRIVATE PATIENTS of both sexes, of the UPPER and MIDDLE CLASSES, at moderate rates of payment. It is beautifully situated in its own grounds, on an eminence a short distance from Nottingham, and commands an extensive view of the surrounding country; and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted.

For terms, &c., apply to Dr. TATE, Medical Superintendent.

Private Home for the Treatment of INSANE LADIES.
ASHBROOK HALL, HOLLINGTON,

within half an hour's walk of St. Leonards-on-Sea, conducted by the Widow of the late Samuel Hitch, M.D., formerly of Sandywell Park, near Cheltenham, for many years Physician to the General Lunatic Asylum for the County of Gloucester.

Station: Warrior-square, St. Leonards. Telegraph Office: Hollington.

For particulars and terms apply to

Mrs. LETITIA A. HITCH or Miss ADAMS, Co-Licensee.

WYE HOUSE, BUXTON.

ESTABLISHED 1857. *NEW INSTITUTION COMPLETED* 1901.

FOR THE CARE AND TREATMENT OF LADIES AND GENTLEMEN MENTALLY AFFLICTED.

VOLUNTARY BOARDERS CAN BE RECEIVED.

Situated 1200 feet above sea level. Facing south, sheltered from north and east. 14 acres grounds, tennis, croquet, golf, curling. Billiard rooms, theatre, workshop in house. Motor-car drives. Garage. Ten minutes from Pavilion Gardens, Baths, and L. & N.W. and Mid. stations. Seaside Branch in N. Wales.

For terms, &c., apply to the Res. Medical Superintendent, GRAEME DICKSON, L.R.C.P., &c. [NAT. TEL. 130.

COURT HALL,
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Established 40 years.

Limited to eight patients.

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ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES, NORTHAMPTON.
FOR THE UPPER AND MIDDLE CLASSES ONLY.

President—The Right Hon. the EARL SPENCER, K.G.

This Institution is a Registered Hospital under the Lunacy Act for the reception of private patients of the Upper and Middle Classes only, and is in no way connected with a County or Borough Asylum in which Pauper Patients are received.

It is pleasantly situated, and is surrounded by more than 100 acres of park and pleasure grounds.

Terms from 31s. 6d. a week, according to the requirements of the case.

Patients paying higher rates can have Special Attendants, Horses and Carriages, and Private Rooms in the Hospital; or at Moulton Park, a Branch Establishment two miles from the Hospital.

The terms may be reduced in suitable cases on application to the Governors on printed forms supplied.

For further particulars apply to the Medical Superintendent.

BRYN-Y-NEUADD HALL, LLANFAIRFECHAN
The Seaside House of St. Andrew's Hospital.

The Hall is beautifully situated in a park of 280 acres close to the sea, and in the midst of the finest scenery in North Wales.

Patients belonging to the Hospital (or Boarders) may go for long or short periods.

For further particulars apply to the Medical Superintendent, St. Andrew's Hospital, Northampton.

Telegraphic Address: "Relief, Old-Catton." Telephone: "290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, near Norwich.

A High-class Home for the Curative Treatment of Nervous Affections. Situated a mile from the City of Norwich. Special and Separate accommodation is provided for those suffering from Hysteria and for cases of Incipient Mental trouble, who can be received as Voluntary Boarders without certificates and occupy their own private suites of apartments. A staff of experienced nurses has been organised to take charge of patients in their own homes. For terms, &c., which are moderate and inclusive, apply to the Misses MCLINTOCK or to CECIL A. P. OSBURNE, F.R.C.S.E., &c., Medical Superintendent

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For LADIES and GENTLEMEN of Unsound Mind.

Terms moderate. Apply to Resident Medical Superintendent, GEORGE HENRY ADAM, L.R.C.P., &c.

Grove House, All Stretton, Church STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally afflicted. Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

NORTHUMBERLAND HOUSE,

Telegrams: "SUBSIDIARY, LONDON."

GREEN LANES, FINSBURY PARK, N.

(Established 1814.)

Telephone: No. 888, North.

A PRIVATE HOME for the Care and Treatment of Ladies and Gentlemen Mentally Afflicted. Four miles from Charing Cross; easy of access from all parts; a quarter of an hour's walk from Finsbury Park Station, G.N.R., from which Trams pass the gates.

Six acres of ground, highly situated, facing Finsbury Park.

Private Villas in suites of rooms. Terms from 2½ guineas upwards according to the accommodation provided.

For further particulars apply to the RESIDENT PHYSICIAN.

PECKHAM HOUSE,

Telegrams: "Alleviated, London.

112, PECKHAM ROAD, LONDON, S.E.

Telephone: 1576 Hop.

An Institution licensed for the CARE and TREATMENT of those MENTALLY AFFLICTED of Both Sexes. Private Patients only received. Gardens cover many acres of ground. Conveniently situated. Electric trams and omnibuses from the Bridges and West-End pass the door. Moderate terms.—Apply to Medical Superintendent for further particulars.

NORTHWOODS HOUSE

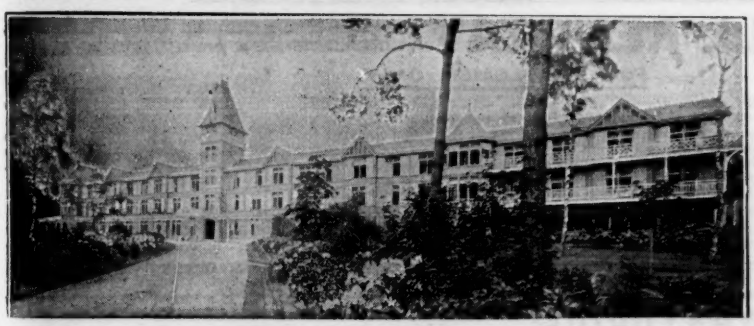
WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality easily accessible by rail via Bristol, Winterbourne, Patchway, or Yate Stations. Uncertified Boarders received.—For further information see Medical Directory, page 1983. Terms moderate.

Apply to Dr. R. HAGER or Dr. J. D. THOMAS, Resident Physicians and Licensees, for full particulars.

NORDRACH-ON-DEE (NEAR BALMORAL, SCOTLAND).



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Established for over 60 years, and under the same management for 20 years. Recovery rate 50 per cent.

Situated midway between Manchester and Liverpool, and having associated with it establishments at **Marsden Hall**, in the Colne District of North Lancashire; and at **Greta Bank** in the Craven District of Yorkshire, near Kirkby Lonsdale; also at **Overdale**, near Manchester.

The Staff consists of:—Resident Medical Proprietor - - - - - CHARLES T. STREET, L.R.C.P. & M.R.C.S.
Resident Medical Licensee - - - - - - - - - A. E. CHAMBERS, L.R.C.P. & M.R.C.S.
Assistant Medical Officer - - - - - - - - - Dr. MARSHALL.
Medical Licensee & Superintendent of Overdale & Marsden Hall P. G. MOULD, L.R.C.P. & M.R.C.S., late A.M.O. Cheadle Royal Hospital.
Visiting Physicians - SIR JAMES BARR, 72, Rodney Street, Liverpool. NATHAN RAW, M.D., 66, Rodney Street, Liverpool.

Dr. STREET can be consulted at 47, Rodney Street, Liverpool, where he attends every Thursday from 2 till 4 o'clock, or Dr. P. G. MOULD, at Winters Buildings, Manchester, on Tuesdays from 12.30 to 1.30. Further particulars and forms of admission can be obtained from the Resident Proprietor, Haydock Lodge, Newton-le-Willows. Patients treated and classified according to their mental condition and social position. Terms from 31s. 6d. a week; private apartments on special terms. Telegraphic Address: "STREET, Ashton-in-Makerfield." Telephone: No. 11 Ashton-in-Makerfield; No. 2456 Royal, Liverpool, on Thursdays.

YARROW CONVALESCENT HOME, BROADSTAIRS.

FOR CHILDREN OF REFINED PARENTS OF LIMITED MEANS.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14.

A Charge of 5s. per week for each child.

Two wards are reserved for serious cases requiring special treatment. In these wards the age limit may be extended to 14 years for Boys and 16 years for Girls.

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Full particulars obtainable from **T. FREDK. MYERS, Secretary,** at the London Office, 6, Holborn Viaduct, E.C.

INEBRIETY AND NARCOMANIA.

INVERNITH LODGE RETREAT, COLINSBURGH, FIFE.

(Licensed under the Inebriates Acts.)

For the treatment of Gentlemen suffering from the Alcohol and Morphine habits, and from the habitual use of such drugs as Cocaine and Chloral. There are many unique advantages. Isolation from temptation, extensive grounds (150 acres), private golf course, shooting, tennis, &c. Billiard rooms, photographic rooms. Grounds 450 feet above sea level; dry and bracing air. Most scientific methods used for those suffering from drug habit. References can be given by the leading medical men in the United Kingdom. Terms and particulars on application to JOHN Q. DONALD, L.R.C.P., L.R.C.S. (Edin.), Proprietor and Resident Physician.

Telegraphic address: "Salubrious," Upper Largo. *Telephone:* No. 8, Upper Largo (P.O. system). Nearest railway station Kilconquhar.

BUNTINGFORD HOUSE RETREAT AND SANATORIUM,

BUNTINGFORD, HERTS.

For Gentlemen suffering from Alcohol and Drug Inebriety; also for Gentlemen Convalescing after Illness. In a most healthy part of the country; 10½ acres of grounds; about 350 feet above sea level. Electric Light throughout from private installation. Golf, Cricket, Tennis, Croquet, Library, Billiards, Photographic Dark Room, Gardening, Carpenters Shops, Poultry, &c., &c. Quarter mile from Station, G.E.R.

Two Resident Physicians.

No Infectious or Consumptive Cases taken. Inebriety Patients are admitted voluntarily only, either privately or under the Inebriates Acts.

Terms 1½-3½ Guineas. *Telephone:* P.O. 3, BUNTINGFORD. *Telegraphic Address:* "RESIDENT, BUNTINGFORD."

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For the Treatment of GENTLEMEN ONLY under the Act and privately.

ALCOHOL & DRUG ABUSE. Half an hour from LONDON.

Established 1883 by the Homes for Inebriates Association. No member of the Association derives any pecuniary profit from the undertaking. Large grounds situated on the banks of the river Colne. Out-door and in-door recreation and pursuits. Terms 2 to 4 guineas weekly.

Apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent. *Telephone*, P.O. 16 Rickmansworth.

THE ALCOHOL AND DRUG HABITS.

THE GHYLL RETREAT (LICENSED UNDER THE INEBRIATES ACTS), nr. COCKERMOUTH, CUMBERLAND.

FOR GENTLEMEN ONLY.

Patients are treated **individually**, and on a sound scientific basis, with the object of building up the general health, strengthening the will, power, and educating the mind to an adverse attitude towards the above habits.

The situation of the house, in the heart of the Lake District, **nine miles from the nearest town and railway station**, is unique in its suitability of this work, its isolation making close confinement **quite unnecessary in the vast majority of cases.** Out-door and in-door sports and occupations, including trout-fishing on own waters, rough shooting over some 2000 acres, golf (private 9-hole course), tennis, &c., are provided, the occupations of gardening, poultry-keeping, fish culture, &c., can be followed, and a workshop and dark-room are provided for carpentry carving, photography, &c., while the house contains a billiard table and a large library is subscribed to.

References can be given to well-known Medical Men in London and the provinces. Terms from £3 3s., according to accommodation.

Full particulars on application to J. W. ASTLEY COOPER, L.R.C.P., &c., Licensee and Medical Superintendent.

Telegraphic Address: "AQUA, BUTTERMERE."

NORWOOD SANATORIUM.

UNDER A COMMITTEE OF WELL-KNOWN MEDICAL MEN whose names will be supplied to any Member of the Profession on application to the Resident Medical Superintendent.

The object is to apply to the treatment of Alcoholic and Drug Inebriety all available knowledge, and, by accurate observation and record of cases, to extend that knowledge, and place the therapeutics of Inebriety upon a definite scientific basis. The treatment is of such a nature that the restrictions common to Retreats need not be enforced. In many cases a residence of six weeks is sufficient. The Sanatorium consists of two detached houses (one for Ladies and one for Gentlemen) situated in beautiful and secluded grounds overlooking the Kentish and Surrey Hills. All information to be obtained from the Resident Medical Superintendent, Norwood Sanatorium, 93, Church-road, Upper Norwood, S.E. Consultations at 14, Stratford Place, W. (opposite Bond Street Tube Station), on Mondays and Thursdays, 3 to 4 P.M.

Telegrams: "NOSOTORIUM, LONDON." Resident Medical Superintendent: FRANCIS HARE, M.D. *Telephone:* 240 SYDENHAM.

PLAS-YN-DINAS.

Licensed under the Inebriates Acts.

This House is the only one in the British Isles where it is made a *sine qua non* that every patient entering it must be a gentleman of good social status, and is in its isolation and extent of property unrivalled, the most recent scientific methods are adopted for the treatment of Inebriety and the abuse of drugs, with excellent results. The Plas is a handsomely furnished residence replete with every convenience, and surrounded by charming and extensive grounds. The sporting property is 25,000 acres, and there are 24 miles of fishing in the Dovey, &c.

References.—Dr. SAVAGE, Dr. FERRIER, and many other leading medical men.

For Prospectus, terms, &c., apply to Dr. WALKER, J.P., Plas-yn-Dinas, Dinas Mawddwy, Merionethshire.

NEWMAINS RETREAT, NEWMAINS, LANARKSHIRE.

Licensed under the Inebriates Acts.

The House is devoted to the Care of LADIES of the upper classes only, who can be treated either under the Acts or as Voluntary Patients. The place stands high and the estate is extensive, with bracing air and in good shelter. It is very retired and beautiful, well suited for the treatment of inebriety, narcomania and other perversions, neurasthenia, hysteria, epilepsy, and minor mental ailments.

No patients under certificate of insanity can be received.

References: Dr. CLOUSTON, Dr. YELLOWLEES, Dr. RISIEN RUSSELL, and others.

Terms and particulars on application to "Superintendent, The Retreat, Newmains, N.B." Nearest station, Hartwood, Cal. Rly.

PAINSWICK SANATORIUM,

COTSWOLD HILLS.

Specially built for OPEN-AIR TREATMENT on the Châlet system. Delightfully situated in its own grounds of 8 acres on southern slope 600 feet above sea level. Bracing hill air. Dry porous subsoil. Sheltered from north and east. Specially designed Sleeping Bungalows, Verandahs, and Revolving Shelters. Specially constructed Dining Hall. Separate Bedrooms. Electric communication between each Sleeping Châlet and rooms of Staff. Resident Physician. Trained Nurses.

Terms: Two-and-a-Half Guineas. Apply, WM. MCCALL, M.D., Painswick, Glos.

PENDYFFRYN HALL SANATORIUM

(NORDRACH in WALES).

A PRIVATE Sanatorium for the Open-Air treatment of Tuberculosis on modern lines. Opened in February, 1900. It stands in its own grounds of over 100 acres of park-land, pine-woods, and mountain, affording a large variety of carefully graduated walks, rising to over 1000 feet above sea level. Small rainfall. Well sheltered from East. Climate bracing. Large average of sunshine. Electric light. Rooms heated by hot water radiators. The Physician has himself been a patient at Nordrach.—For particulars apply to G. MORTON WILSON, M.B., PENDYFFRYN HALL, CAPELULO, near PENMAENMAWR, NORTH WALES. Telegrams: "PENDYFFRYN, PENMAENMAWR." Nat. Telephone: No. 20 PENMAENMAWR

VALE OF CLWYD SANATORIUM.

This Sanatorium is established for the Treatment of Pulmonary and other forms of Tuberculosis as carried out by Dr. OTTO WALTHER of Nordrach. It is situated in the midst of a large area of park land at a height of 450 ft. above the sea level, and commands extensive views of the Vale of Clwyd. It has a bracing climate, with a small rainfall and a large amount of sunshine. It is well sheltered on the N. and E. by mountains rising to 1800 ft., which afford facilities for a great variety of uphill walks.

The Physicians are fully conversant with Dr. WALTHER'S Treatment, having themselves been patients at Nordrach.

For particulars apply to CECIL E. FISH, B.A., M.B., B.C., M.R.C.S., L.R.C.P., or GEO. A. CRAGE-CALVERT, M.B., M.R.C.S., L.R.C.P., Llanbedr Hall, Ruthin, North Wales.

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FOR THE OPEN AIR TREATMENT OF CONSUMPTION.

Specially designed, built, and equipped on carefully chosen ground. Sheltered from east, north, and west on a sunny southern slope, over 400 ft. above sea level. Large grounds covered with pine woods and heather, with beautiful distant views. Full staff of Nurses. Electric lighting. Opsonic tests. A few chalets and special block for slight cases and convalescents. Apply to Dr. F. RUFENACHT WALTERS, Farnham, Surrey. [*Reg. Tel. Address:* "Sanatorium, Farnham."

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For the Treatment of Phthisis ON THE MENDIP HILLS.

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Resident Physicians—ROWLAND THURNAM, M.D.; COLIN S. HAWES, M.R.C.S., L.R.C.P.

Terms from 3 to 5 guineas weekly, according to size and position of room.

For full particulars apply to THE SECRETARY, Nordrach-upon-Mendip, Blagdon, near Bristol. *Telegrams:* "*NORDRACH, BLAGDON.*"

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PINEWOOD, NINE MILE RIDE, near WOKINGHAM, BERKS.

Telephone No. 34 Crowthorne.

For the Treatment of Pulmonary Tuberculosis.

Situated in its grounds of 82 acres of Pine Forest. Specially built with every essential of hygiene and comfort. Each Patient has a separate bedroom facing south with electric light. Two Resident Medical Officers.

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Suitable cases will be admitted immediately.

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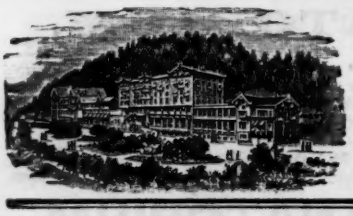
"The Biarritz of Wales,"

is highly recommended for invalids. It possesses the most equable temperature, its shores being swept by the Gulf Stream and the S.W. breezes of the Atlantic. The drainage is perfect and the town is supplied with the purest water from Plynlimmon and lighted with electricity. The late Sir James Clarke, M.D., says: "A fortnight in Aberystwith is equivalent to a month's residence in most watering-places." Guide and information can be had on application to the Town Clerk.



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Stations: Hagley, G.W.R. / Bromsgrove, M.R. Telegrams: "Sanatorium, Belbroughton."

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Two Physicians in daily attendance.

Within a few minutes' walk of the various Celebrated Mineral Springs. Splendid Turkish and other Baths. Special terms for dietetic and other systems of treatment. Agreeably heated throughout.

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Exceedingly pleasant mansion in its own private grounds; healthful situation; home life and comforts; most gratifying results; both alcohol and drug cases. Inclusive terms £1 1s. per week. See prospectus. Applications to Hon. Secretary, Mrs. A. S. PENTITH, The Limes, Sutton, Hull. Hon. Physician: GEO. SAVAGE, Esq., M.D., C.M.

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CAPEL LODGE RETREAT AND SANATORIUM, NEAR FOLKESTONE.
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Four miles round. No licensed houses. Full liberty. Strictly private. Bracing air.

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The David Lewis Colony, recently erected solely for the benefit of sane epileptics, stands in its own grounds of 113 acres, is situated at Warford in a beautiful part of Cheshire, two and a half miles from Alderley Edge Station, and fourteen miles from Manchester. Electric light throughout. Perfect sanitation.

The Colony system ensures for epileptics the social life and employment best suited to their needs.

Terms, for middle and upper class patients, from 30s. a week upwards, according to accommodation and requirements.

For further information apply to the Director, Dr. McDougall, Warford, near Alderley Edge, Cheshire.

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A few Vacancies in a modern house at Maghull, Lancashire, specially erected and equipped for the Treatment of Gentlemen suffering from Epilepsy. Experienced Medical and Nursing treatment. Farming, gardening, billiards, lawn tennis, cricket, bowls, &c.

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Extensive private grounds in the beautiful Lickey district.

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A new Hospital for Mental Cases has been opened for the reception of Private Patients. Terms £1 1s. 0d. per week.

There are vacancies for both sexes. For particulars apply to the MEDICAL SUPERINTENDENT, HATTON ASYLUM, WARWICK.

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For the Special Treatment of Paralysis, Neurasthenia, Osteo-Arthritis, Deafness, &c.

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Resident Patients.—List of Doctors in all parts receiving Resident Patients, with description of accommodation, terms, &c., can be had without charge from Mr. G. B. Stocker, 22, Craven-street, Strand, W.C., or selection will be made on statement of nature of case and means.—Telephone, No. 1854 Gerrard.

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Anglo-Indian and Colonial Children received in experienced married Physician's HOME by the Sea in the Cornish Riviera, the mildest climate in England.
House specially adapted for purpose.
For terms and all information apply "Physician," "Pedn-Vean," Porthleven, Cornwall.

Barton Court Hotel, New Milton, Hants. Magnificent golf links adjoining hotel; facing sea; due south; bracing air; most picturesque hotel on south coast. Moderate winter terms; also Friday to Monday inclusive. Excellent cuisine. Highly recommended.
On main line from Waterloo; nine miles from Bournemouth, close to New Forest.

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Any INVALID wishing to reside with a Medical Man at home or abroad should apply to Hon. Sec., 56, Outer Temple, Strand, W.C.

Hampshire Doctor, married, with special experience of mental work, can receive one Resident Patient, mental or otherwise. Beautiful detached house in large sheltered garden, tennis, croquet lawns, &c. Delightful climate, easy distance of London. Every home care and comfort. Driving, motoring, hunting, and golf. Address, No. 578, THE LANCET Office, 423, Strand, W.C

Private Home for the Care, Instruction, and Training of Backward, Delicate, and Feeble-minded Children, under Medical management. Special Department for elder Girls and Boys. Resident Teachers. Home comforts. Cycling, gardening, out-door games, &c., taught. Twenty years' experience. Large secluded grounds.—Apply, Lady Superintendent or Medical Director, Woodfield, Streatham, Surrey.

Resident Patient.—Medical Man, with large Detached House in its own grounds in high outlying Northern Suburb of London, is prepared to take chronic invalid, or any case requiring medical supervision. Own suite of rooms if desired. No other patient taken. Use of horse and carriage or motor can be arranged if necessary. Golf near.—Apply in the first instance to M.B., care of Fieldhall Ltd., Medical Transfer Agents, 71-72, Strand, W.C.

A Physician (married, no children) of wide experience, living in favourite health resort, S. Devon, offers comfortable HOME to Invalid or anyone requiring rest or change. Good detached commodious house; large sheltered garden.—Address, No. 340, THE LANCET Office, 423, Strand, W.C.

Nursing Home, under Medical supervision, for Rest and Special Dietetic Treatment of the Nervous and Digestive Systems, Neurasthenia, Indigestion, Insomnia, &c. Certificated Nurse and Masseuse.—For further particulars, apply Miss Little, Holmburn, Melrose.

A Physician (married, no family) has a Vacancy in his Country Home for a RESIDENT PATIENT. Detached house, garden, &c.; pretty neighbourhood. Gravel soil. Golf, boating, fishing, tennis, &c. Easy distance from London. Terms strictly moderate. Highest references.—Address, No. 116, THE LANCET Office, 423, Strand, W.C.

Comfortable Home for Chronic Invalid. Every home comfort with skilled nursing.—Apply, Sister, 20, Southwold-road, Upper Clapton, N.

Doctor, bachelor, in agreeable town half an hour (L.B. & S.C. Ry.) from London, first-rate golf course, tennis, badminton, cricket, &c., desires on very moderate terms PAYING GUEST. Separate sitting-room if desired.—Address, No. 102, THE LANCET Office, 423, Strand, W.C.

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Jan. 21, Paparoa (tw. sc.), 6563. | Feb 18, Ruapehu (tw. sc.), 7895.
Low fares, single and return. Superior accommodation.
Apply to Gray, Dawes & Co., Craven House, Northumberland-avenue, or to J. B. Westray & Co., 138, Leadenhall-street, E.C.

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WINTER IN THE WEST INDIES
60 days, £65; 75 days, £75.
Spanish Main, Jamaica, Cuba, and Mexico, 10 weeks, £70.
For illustrated Booklet and full particulars, apply as above.

Western General Dispensary, Marylebone-road, N.W.—Wanted, an HONORARY RADIOGRAPHER to the above Institution. Applications and testimonials to be sent to the Honorary Secretary on or before January 8th, 1909.

Notts Consumption Sanatorium.—Wanted, early in February, a RESIDENT MEDICAL OFFICER (Female). Salary £100. Applications, stating age, qualifications, and previous experience (if any), must reach Mr. Geo. Sheldon, 36A, Bridlesmith Gate, Nottingham, not later than January 6th.

Newcastle-upon-Tyne City Lunatic ASYLUM, Gosforth, Newcastle-upon-Tyne.—Wanted, a SECOND ASSISTANT MEDICAL OFFICER, registered, unmarried, and under thirty years of age (previous asylum experience not essential). Salary £140 a year, rising £10 per annum to £160, with furnished apartments, board, and laundry. Applications to be sent to
Dr. CALLCOTT, Medical Superintendent.

Clayton Hospital and Wakefield GENERAL DISPENSARY.—JUNIOR HOUSE SURGEON required (single gentleman). Must be doubly qualified and be good Anæsthetist. One with previous hospital experience preferred.
Salary £80 per annum, with board, lodgings, and washing.
Apply at once, with copies of three recent testimonials, to the Hon. Secretary, Clayton Hospital, Wakefield.

Royal Ear Hospital, Soho.—NON-RESIDENT HOUSE SURGEON required. Salary at the rate of £40 per annum. The post is tenable for six months, and the gentleman appointed will be required to enter upon his duties on 1st January next. Applications, stating age, with copies of three recent testimonials, to be sent to the undersigned.
THE HONORARY SECRETARY, Medical Board,
42 and 43, Dean-street, Soho, London, W.

East London Hospital for Children and DISPENSARY for WOMEN, Shadwell, E.—HOUSE PHYSICIAN (Male).—This appointment will be vacant on the 1st February, 1909. Candidates must be fully qualified and registered. Board, residence, laundry, &c., are provided. Salary at the rate of £75 per annum, paid monthly.
Applications, with copies of testimonials, should be forwarded to the undersigned on or before Saturday, the 9th January, 1909.
W. M. WILCOX, Secretary.

INDIAN MEDICAL SERVICE.

INDIA OFFICE, LONDON, 11th December, 1908.

An Examination for not less than 11 COMMISSIONS in His Majesty's Indian Medical Service will be held in London on Monday, 25th January, 1909, and the five following days. Particulars regarding pay, promotion, &c., in the Service and the necessary forms for application can be obtained from the Military Secretary, India Office, London, S.W. The applications, duly filled up and accompanied by the required certificates, must reach the India Office on or before the 12th January, 1909. O'M. CREAGH, General,
Military Secretary.

Metropolitan Hospital, Kingsland-road, N.E.—The Committee of Management are prepared to receive applications for the appointment of a RESIDENT ANÆSTHETIST, who shall act as Casualty Officer and Registrar to the Hospital. Salary will be at the rate of £80 per annum, and the appointment is a whole time appointment.

Particulars of the duties can be obtained from the undersigned, to whom applications must be sent not later than first post 4th January, 1909. J. C. BUCHANAN, Secretary.

Nottingham General Hospital. — Wanted, an ASSISTANT HOUSE PHYSICIAN. Appointment for twelve months. Salary £60, with board, lodging, and washing in the Hospital.

Applications, stating age, with testimonials, addressed to the Secretary, to be delivered not later than Saturday, 16th of January, 1909. The election will take place on Wednesday, 20th of January, and the successful candidate will be required to commence his duties immediately after the election. By order.
E. M. KEELY, Secretary.

The Queen's Hospital for Children, (late "NORTH-EASTERN" HOSPITAL for CHILDREN), Hackney-road, Bethnal Green, E. (130 Beds).—A HOUSE SURGEON required.

The appointment is made for six months. Salary at the rate of £60 per annum, with board, residence, and laundry.

Candidates must be doubly qualified and must send in their applications, with copies of not more than four testimonials given specially for the purpose, to the Secretary on or before Monday, 11th January.

21st Dec., 1908. T. GLENTON-KERR, Secretary.

Telephone 305 Dalston.

The Guest Hospital, Dudley (100 beds).—Wanted, a SENIOR RESIDENT MEDICAL OFFICER. He must be doubly qualified and on the Medical Register. Experience in Ophthalmic and X ray work is desirable.

Salary commencing at £100 per annum, increasing by £10 a year to £120, if services are satisfactory, with board, residence, attendance, and washing.

Applications, stating age, and accompanied by not more than ten testimonials, to be sent to the Secretary at the Hospital not later than Thursday, January 14th, 1909.

Selected candidates will be requested to meet the committee on Friday, January 22nd.

Bridgwater Hospital.—Wanted, a HOUSE SURGEON, unmarried, under thirty, fully qualified and registered, with a knowledge of the working of X-Ray Apparatus. Salary at the rate of £80 per annum, with board, lodging and washing. The appointment will be for six calendar months, but the elected candidate will be eligible for re-election. Duties to commence January 29th, 1909.

Applications, with copies of not more than three testimonials, must reach the Honorary Secretary on or before the 11th January, 1909. Canvassing by or on behalf of the candidate will disqualify.
EDWARD TREVOR, Honorary Secretary.

Bank Chambers, Bridgwater.

The Royal Infirmary, Hull.— Wanted, CASUALTY HOUSE SURGEON. Must be fully qualified, willing to hold office for not less than six months, and shall give and receive one month's notice to terminate engagement. His duties will be chiefly in the Casualty and Out-patient Department, where an exceptionally varied experience may be obtained, patients being drawn from a sea-going community as well as from a manufacturing and agricultural district. He will also have charge of beds in the Isolation Hospital. Salary at the rate of £60 per annum for six months appointment or £80 per annum for twelve months, with board and lodging.

Applications, with copies of testimonials, to be sent in addressed Chairman, House Committee, on Tuesday, 5th January, 1909.
BENJAMIN BROOKS, Secretary.

Corporation of Leicester.—Applica- tions are invited for the position of RESIDENT MEDICAL OFFICER at the ISOLATION HOSPITAL and ASSISTANT MEDICAL OFFICER OF HEALTH. The Hospital contains about 200 beds and the diseases treated include scarlet fever, diphtheria, enteric fever, and phthisis. The duties also include bacteriological work and, when required, assisting the Medical Officer of Health.

The salary is £150 per annum, with board and residence.

Applications, stating qualifications, age, and experience, and accompanied by copies of three recent testimonials, must reach me before midday on Wednesday, Jan. 6th.
C. KILLICK MILLARD, M.D., Medical Officer of Health.

Town Hall, Leicester.

The General Infirmary at Gloucester and the GLOUCESTERSHIRE EYE INSTITUTION.—There is a vacancy for an ASSISTANT PHYSICIAN on the Acting Medical Staff of this Institution.

By the rules of the Hospital "the Assistant Physician shall be a Graduate in Medicine of one of the Universities recognised by the Medical Council of the United Kingdom, or a Fellow or Member of the Royal College of Physicians of London, or a Fellow of the King and Queen's College of Physicians of Ireland, or a Fellow of the Royal College of Physicians of Edinburgh."

Candidates should send in their applications, diplomas, and testimonials, under cover, to the Secretary on or before Wednesday, the 6th day of January next.

Members of the Acting Medical Staff are appointed by the Election Committee.

Gloucester, November 26th, 1908. HENRY P. PIKE, Secretary.

Notts County Lunatic Asylum, Radcliffe-on-Trent, Notts.—The Committee of Visitors are desirous of engaging a Gentleman qualified to act as, and fully capable of performing the duties of, MEDICAL SUPERINTENDENT of the above Asylum, containing 480 patients.

He must be a Fellow or Member of the Royal College of Surgeons of England and Licentiate of the Royal College of Physicians, London, accustomed to the management of a Lunatic Asylum, married, not under thirty-five years of age.

He will be required to devote the whole of his time to the duties of the office and will be precluded from private practice.

The salary will be £600 per annum, with unfurnished house, coal, light, washing, and garden produce.

Candidates for the appointment are requested to forward to the undersigned, on or before the 14th day of January, 1909, applications in writing, stating age, qualifications, past and present occupations, whether married, and when at liberty to enter upon the duties of the office, accompanied by copies of four recent testimonials.

Canvassing is prohibited. JOHN FREDERICK GELL,

21st December, 1908. Clerk to the Visiting Committee.

Borough of King's Lynn.—Appoint- ment of MEDICAL OFFICER of HEALTH.—The Town Council of the Borough of King's Lynn invite applications from legally qualified Medical Practitioners for the office of Medical Officer of Health for the Borough.

The appointment is subject to the approval of the Local Government Board.

The gentleman appointed will be required to act also as Medical Officer for the King's Lynn Port Sanitary Authority, and as Medical Inspector of Children attending Public Elementary Schools in the Borough.

Except as stated in the printed conditions hereinafter referred to, he must devote the whole of his time to the duties of the appointments. Salary £300 per annum, with permission to undertake certain other work and receive payment therefor.

Further particulars of duties and conditions of appointment may be obtained from the undersigned, and applications endorsed "Appointment of Medical Officer of Health," accompanied by copies of three recent testimonials, must be received by me on or before Tuesday, the 12th January, 1909. J. W. WOOLSTENCROFT, Town Clerk.

Town Hall, King's Lynn, 22nd December, 1908.

County Borough of Smethwick Educa- TION COMMITTEE.—MEDICAL INSPECTION OF SCHOOL CHILDREN.—Appointment of SCHOOL MEDICAL OFFICER.—Applications are invited for the post of School Medical Officer to carry out, under the direction of the Medical Officer of Health for the District, the work of the Medical Inspection of Children in accordance with the Education (Administrative Provisions) Act, 1907, and the Education (Defective and Epileptic Children) Act, 1899.

The gentleman appointed will be required to devote the whole of his time to the service of the Committee, and will not be allowed to engage in any private practice.

The salary attached to the office will be £250 per annum.

Applicants must be registered Medical Practitioners, and it is desirable that they should be qualified in Hygiene and Public Health. Applications should be made on a form, which may be obtained from the undersigned on receipt of a stamped addressed envelope, and they should be in my hands not later than the 9th January, 1909.

Canvassing, directly or indirectly, will disqualify for appointment.
ARTHUR H. SEARS, Secretary.

Education Committee, Council House, Smethwick.

Brentford Union.—Assistant Medical SUPERINTENDENT.—The Guardians are prepared to receive applications from duly qualified gentlemen for the appointment of Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Workhouse and Schools at Isleworth.

The person appointed will be required to devote his whole time to the service of the Guardians. Commencing salary £120 per annum, with furnished apartments in the Infirmary, rations, washing, &c., subject to a deduction for superannuation.

Candidates must be single, duly registered under the Medical Acts, and be qualified by law to practise both in medicine and surgery in England and Wales. The appointment will be made subject to the approval of the Local Government Board and the regulations contained in the Infirmary Order.

Applications, upon forms which can be obtained by sending a stamped addressed foolscap envelope, must reach me before Tuesday, the 12th day of January, 1909.

Canvassing the Guardians, directly or indirectly, is strictly prohibited and will disqualify. By order.
WILLIAM STEPHENS, Clerk to the Guardians.

Union Offices, Isleworth, W., 21st December, 1908.

Highlands and Islands of Scotland.—Before applying for Appointments candidates are requested to communicate with the Secretary of the Scottish Poor-law Medical Officers' Association, 1, Seton-terrace, Dennistoun, Glasgow.

Nottingham General Dispensary.—Wanted immediately, ASSISTANT RESIDENT SURGEON, male, unmarried. Must have medical and surgical qualifications. Salary £160, with apartments, attendance, light, and fuel.

Applications, stating age, and accompanied by recent testimonials, to be sent to C. CHEESMAN, Secretary.
12, Low Pavement, Nottingham.

Parish Council of Kincardine (Ross-shire).—Wanted by this Council, a duly qualified separate RESIDENT MEDICAL OFFICER AND VACCINATOR, who must be prepared to enter on his duties by 17th March prox. at latest. Salary as Medical Officer under the Council, which is inclusive of cost of medicines, £100 per annum, as Vaccinator £5 per do., with Lunacy fees in addition. Suitable house is available at a moderate rent. Population of parish at last census, 1285.

Applications, with testimonials and particulars, to be lodged with the undersigned by Friday, 29th January, 1909.
Ardgay, Ross-shire. DAVID ROSS, Inspector of Poor.

Stirling District Asylum, Larbert, N.B.—Wanted, THIRD ASSISTANT MEDICAL OFFICER (Lady), who would also act as Pathologist and devote her time to laboratory work. Preference will be given to a candidate with training in bacteriology. Salary £100 per annum, with board, &c. Apply, with testimonials, to the Medical Superintendent.

Bournemouth.—Royal Boscombe and WEST HANTS HOSPITAL (40 Beds).—HOUSE SURGEON wanted. Duties to commence Jan. 25th, 1909. Salary £80 per annum, with board, lodging, and washing. Appointment for six months, renewable at Committee's discretion for further six months. Applications and testimonials to be sent to the Hon. Sec. not later than Jan. 14th next.

Chelsea Hospital for Women, Fulham-road, S.W.—The post of HOUSE SURGEON will shortly be vacant. Candidates must be registered Medical Practitioners, unmarried. Salary £80 per annum. Applications, accompanied by not more than three testimonials, must be sent to the undersigned by Wednesday, January 6th, 1909, at noon.
HERBERT H. JENNINGS, Secretary.

Oldham Infirmary. — Wanted, a thoroughly qualified OPHTHALMIC SURGEON. Must reside and practice in the Parliamentary Borough of Oldham. The appointment is for eight years, eligible for re-election. Honorarium 50 guineas per annum. Applications, with testimonials, to be sent on or before January 23rd, 1909, to E. LIONEL BLAKE, Secretary and Supt., from whom further particulars may be had. Canvassing will disqualify.

Sussex County Hospital, Brighton.—"STEPHEN RALLI" MEMORIAL.—An ASSISTANT PATHOLOGIST to the Bacteriological and Clinical Research Department of the above Institution is required. Salary £80 per annum, with board, residence, and laundry. Applications, with copies of testimonials, to be sent to the Secretary of the Hospital by 6th January, 1909.

Sussex County Hospital, Brighton.—STEPHEN RALLI MEMORIAL.—A PATHOLOGIST, who will have charge of the Bacteriological and Clinical Research Department, also of the Post-mortem Department of the above Institution, is to be appointed. Salary, without residence, £350 per annum, and half the fees earned in private practice.

The Hospital has no licence for the practice of Vivisection.

Applications, with copies of testimonials, must be sent to the Secretary of the Hospital by 3rd February, 1909.

Dental Surgeon.—The Committee of Management of the HOSPITAL for CONSUMPTION and DISEASES of the CHEST, Brompton, invite applications for the post of Dental Surgeon. Applicants must be registered Dental Practitioners, and preference will be given to candidates who are qualified Surgeons. An honorarium of 50 guineas per annum will be paid. Applications, accompanied by copies of testimonials, must be sent in not later than Thursday, January 21st.
FREDERICK WOOD, Secretary.

Lewes Dispensary and Infirmary and VICTORIA HOSPITAL.—Vacancy.—RESIDENT MEDICAL OFFICER, doubly qualified and registered, required to visit and act as House Surgeon. Salary £120 per annum, furnished apartments, board, coal, gas, washing, and attendance. Applications, with testimonials, stating age, must be sent to the Hon. Sec. The person appointed will have to devote the whole of his time to the purposes of the Institution and will be required to enter into an agreement not to practise in the town or within six miles thereof for a period of twelve months after leaving the Institution.
Lewes, Dec. 29th, 1908. WM. EDWD. NICHOLSON, Hon Sec.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E. (130 beds) (late North-Eastern Hospital for Children).—ASSISTANT RESIDENT MEDICAL OFFICER required on 1st February. The appointment will be made for twelve months. Salary £75 per annum, with board, residence, and washing. Candidates must have held a responsible resident appointment at a recognised hospital. Applications, with copies of not more than three testimonials, given specially for the purpose, should reach the Secretary on or before 11th January.
14th December, 1908. T. GLENTON-KERR, Secretary.
Telephone: Dalston 305.

The Middlesex Hospital, W.—REGISTRAR to the CANCER WARDS (47 beds). SCHOLAR in the CANCER RESEARCH LABORATORIES.

Applications are invited for the above appointments from gentlemen holding one of the higher professional qualifications.

The salary of the Registrar is £40 per annum, and that of the Research Scholar £60 per annum.

The appointments may be held concurrently.

Applications, with copies of testimonials, should be forwarded to the undersigned, from whom further particulars can be obtained, not later than Saturday, 9th January, 1909.

By order.
F. CLARE MELHADO, Secretary-Superintendent.
30th December, 1908.

The Hospital for Sick Children, Great Ormond-street, London, W.C.—A HOUSE PHYSICIAN is required on the 7th January, 1909. Candidates are invited to send in their applications, addressed to the Secretary, before 12 o'clock on Tuesday, 5th January, with not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible hospital appointment.

The appointment is made for six months. Salary £30, washing allowance £2 10s., with board and residence in the Hospital. Candidates must be unmarried and possess a legal qualification to practise. They will be required to attend before the Joint Committees at their meeting on Wednesday, the 6th January, 1909, at 5 P.M. precisely.

Forms of application to be obtained from the Secretary.

By order of the Committee of Management.
December, 1908. STEWART JOHNSON, Secretary

Parish of Liverpool.—Wanted, an ASSISTANT MEDICAL OFFICER for the Workhouse, Brownlow Hill, Liverpool. Salary (subject to superannuation deductions) £80 per annum, with rations, an additional sum of £20 being allowed for examining applicants for out-door relief. He will be required to reside within the Workhouse in the apartments provided for him, and to devote his whole time to the duties as fixed by the Select Vestry.

The appointment will be made determinable on any date by one calendar month's notice from either side.

Applications, inclosing testimonials, with certificates of qualifications, and stating age of candidate (who must be unmarried), to be sent to the office of the undersigned not later than Monday, the 11th January next.
H. J. HAGGER, Vestry Clerk.
Parish Offices, Brownlow Hill, Liverpool,
26th December, 1908.

University of Edinburgh.—Additional EXAMINERSHIPS in PUBLIC HEALTH and PRACTICE of MEDICINE.—The University Court of the University of Edinburgh will, on Monday, 18th January, 1909, or some subsequent day, proceed to the appointment of an Additional Examiner in Public Health and in Practice of Medicine.

Each applicant should lodge with the undersigned, on or before Tuesday, 12th January, 1909, twenty copies of his application and twenty copies of any testimonials he may desire to present. The number of testimonials is limited to four. One copy of the application should be signed.

Further particulars on application.
M. C. TAYLOR, Secretary, Univ. Court.
University of Edinburgh, 24th December, 1908.

Cheltenham General Hospital.—The post of SURGEON-IN-CHARGE of the Branch Dispensary is vacant. Candidates must be unmarried and have a registered qualification in Medicine and Surgery. Salary £80 per annum, an allowance of £10 per annum in lieu of cab hire, with board and lodging at the General Hospital. The duties of the Surgeon-in-Charge are to see out-patients daily (Sundays excepted) at the Branch Dispensary and to attend such patients at their own homes as may require a visit. Applications, with copies of testimonials, to be sent to the undersigned at the Hospital on or before Tuesday, January 19th next. Personal canvass of the Governors is expressly forbidden.

By order.
W. H. HEAD, Secretary.

Royal Hospital, Richmond, Surrey.—HOUSE SURGEON and ASSISTANT HOUSE SURGEON.—The Committee of the Royal Hospital, Richmond, require the services of a House Surgeon and also of an Assistant House Surgeon. Each must have a Medical and Surgical qualification and be duly registered under the Medical Act. The salary of the House Surgeon will be £100 per annum, and that of the Assistant House Surgeon £70 per annum, with board and furnished apartments. Copies of testimonials, not exceeding three in number, to be forwarded to the Secretary for submission to the Medical Council on or before the 9th January. The appointment will be made by the Medical Officers on the 15th January, when the selected candidates will be required to attend. Any further information can be obtained of the Secretary. GEORGE C. ROWLAND, Secretary.

Hastings, St. Leonards, and East

SUSSEX HOSPITAL.—Wanted, ASSISTANT HOUSE SURGEON (qualified). Honorarium £20 for six months, with residence, board, and washing. Applications in writing, with copies of testimonials, to be sent to the Secretary at once.

Honorary Anæsthetist.—The Com-

mittee of the ROYAL NATIONAL ORTHOPÆDIC HOSPITAL invite applications for the vacant post of an Honorary Anæsthetist. Further particulars may be had from the Secretary at the Hospital, No. 234, Great Portland-street, to whom applications should be addressed not later than Monday, January 11th.

Central London Throat and Ear

HOSPITAL, Gray's Inn-road, W.C.—REGISTRARS.—There are vacancies for Registrars (honorary); yearly appointments. Attendance required twice a week.

Applications to be made to RICHARD KERSHAW, Secretary.

Manchester Royal Infirmary.—Resi-

DENT MEDICAL OFFICER at the Convalescent Hospital, Cheadle, Cheshire.—The Board of Management are prepared to receive applications for the above office. Applicants must not be less than twenty-five years of age and unmarried. They must be registered and hold a medical and surgical qualification. The appointment will be for a term of twelve months, but the holder of the office is eligible for re-appointment for a further period of one year. The remuneration will be £150 per annum, with board and residence. Applications, with nine copies of testimonials and stating age, to be directed to the undersigned on or before 9 A.M. on Friday, the 15th January next.

WALTER G. CARNT,
General Superintendent and Secretary.

Manchester Royal Infirmary, 29th December 8th, 1908.

Borough of Royal Leamington Spa.—

ASSISTANT MEDICAL OFFICER OF HEALTH.—Applications are invited for the office of Assistant Medical Officer of Health.

Candidates must hold the Diploma of Public Health, and be qualified and willing to undertake Bacteriological Examinations and the Analysis of Water and of Food and Drugs.

Salary £250 per annum.

Particulars of the conditions and duties of the office (the latter will include the Medical Inspection of School Children) may be obtained on application to me.

Canvassing is strictly prohibited and will disqualify the candidate.

Applications, stating age, and accompanied by copies of not more than three recent testimonials, endorsed "Assistant Medical Officer," must be received by me on or before the 18th day of January, 1909.

LEO. RAWLINSON, Town Clerk.

Town Hall, Leamington Spa, 1st January, 1909.

West London Hospital, Hammer-

smith-road, W. (160 beds).—The Board of Management invite applications (*a*) for an appointment as ASSISTANT OPHTHALMIC SURGEON; (*b*) for appointment as PATHOLOGIST.

Candidates for the former appointment must be Fellows of one of the Royal Colleges of Surgeons of England, Edinburgh, or Dublin, and not practising midwifery or pharmacy.

Candidates for the latter appointment must be registered under the Medical Act; prepared to attend daily for the purpose of making bacteriological and post-mortem examinations; to take charge of the Museum and hold classes in bacteriology, &c. Salary £200 per annum.

Candidates must send applications, accompanied by copies only of testimonials, so as to reach me by Saturday, 30th January; be in attendance here at the Medical Council at 4.30 P.M. on Tuesday, 2nd February, and prior to that date call upon and send copies of their applications and testimonials to the members thereof; abstain from canvassing but nevertheless send copies of their applications and testimonials to the members of the Board; and be in attendance at the meeting of the Board here at 5 P.M. on Monday, 8th February.

28th Dec., 1908. R. J. GILBERT, Secy.-Supt.

Borough of Southend-on-Sea.—Ap-

pointment of ASSISTANT MEDICAL OFFICER OF HEALTH.—The Corporation of Southend-on-Sea invite applications for the appointment of a Male Assistant Medical Officer of Health for the Borough, which has an estimated population of over 57,000. The gentleman appointed will be required to assist the Medical Officer of Health, who is also the School Medical Officer, in the performance of his duties in connexion with the schools and school children, and the work of the Assistant Medical Officer of Health will chiefly consist of the medical inspection of school children; he will also be required to assist and act as deputy for the Medical Officer of Health in the performance of the general public health work of the Borough and to devote the whole of his time to the above duties and to reside within the Borough.

Candidates must be duly registered medical practitioners.

The salary will be £250 per annum and the appointment will be made in the first instance for a period of one year.

Forms of application and further particulars may be obtained from me, and applications, accompanied with copies of not more than three recent testimonials, must be delivered at my office in sealed envelopes, endorsed "Assistant Medical Officer," not later than 10 A.M. on Wednesday, January 13th, 1909.

Selected candidates will be required to attend at the Municipal Buildings, Southend-on-Sea, on Tuesday, the 19th January, when the appointment will be made.

Canvassing any member of the Town Council will be deemed a disqualification. By order.

WILLIAM H. SNOW, Town Clerk.

Southend-on-Sea, 29th December, 1908.

Rotherham Hospital and Dispensary.

Wanted, a SENIOR HOUSE SURGEON. Candidates preferred who have had at least six months' previous experience as House Surgeon or Assistant House Surgeon. Knowledge of Eye Work and Refractions essential. Salary £110 per annum, with rooms, commons, and washing. Duties to commence in March.

Applications, with copies of four recent testimonials, to be sent to the Secretary, H. Kelson, Masonic Buildings, High-street, Rotherham.

Rotherham Hospital and Dispensary.

Wanted, an ASSISTANT HOUSE SURGEON. Ophthalmic experience a recommendation. Salary £80 per annum, with rooms, commons, and washing. Duties to commence immediately.

Applications, with copies of four recent testimonials, to be sent at once to the Secretary, H. Kelson, Masonic Buildings, High-street, Rotherham.

London Fever Hospital, Liverpool-

road, N.—Applications are invited from candidates for the post of ASSISTANT RESIDENT MEDICAL OFFICER. £150 per annum, with residence and board. The election will be for one year, subject to re-election yearly, up to three years in all. Must be fully qualified, and applications, with copies of four recent testimonials, to be sent to the Secretary, at the Hospital, not later than the 25th January, 1909.

W. CHRISTIE (Major), Secretary.

MEDICAL TRANSFER AGENCY (Est. 1860),

CLOCK HOUSE,
ARUNDEL STREET, STRAND, W.C.

MR. HERBERT NEEDES, with 28 years' practical experience, personally conducts the TRANSFER of PRACTICES and PARTNERSHIPS, and undertakes INVESTIGATIONS and VALUATIONS for PURCHASERS.

1. PARTNERSHIP.—For Sale, the THIRD SHARE of a sound Mixed PRACTICE in fair-sized Town in favourite Southern County. Receipts for 1908 £1681. Premium £1000, part of which can remain. Incomer must be an active man of some experience.
2. COUNTRY TOWN PRACTICE within two hours in a rich hunting district. Receipts for 1908 about £500, including appointments. Fees good. Excellent social advantages, golf, &c. Very convenient house, with stabling, gardens, tennis lawn, field, &c.; rent £56. Price £630. Easily worked and suitable for one desiring light occupation.

3A. CASH PRACTICE.—£350 a year.—In main London thoroughfare, and averaging the above income. Vendor has held possession twenty-five years, and is resigning through ill-health. Moderate premium. Can be worked as a non-residential Surgery if desired.

3B. LONDON, S.W.—Middle-class increasing PRACTICE of £500 a year, including £110 from transferable appointments. Fees from 2s. 6d. upwards. Convenient semi-detached house, main road, with good garden; rent £55. Premium only £450.

4. URGENT SALE.—PRACTICE in N.W. London. Present income £600. Appointments £130. Held by Vendor eighteen years. Suitable either for gentleman of means or for young energetic beginner. Personally known to Mr. Needes.
5. £150 ACCEPTED FOR GROWING PRACTICE within fifteen miles. Established eighteen months. Receipts for past twelve £210. No opposition within one and a half miles. Population over 2000. Rent and taxes £40. Vendor giving up profession.
6. NON-RESIDENTIAL SURGERY in good part of W.C. District.—£250 a year. Fees 3s. 6d. to 10s. 6d. Rent £50. Price £200, to include furniture and drugs. Also NON-DISPENSING CONSULTING NUCLEUS near West End. £200 per annum. Fees 5s. to 21s. Rent £90. Two hours daily. Price £75.
7. LONDON, N.W.—Open Middle-class District. PRACTICE of £600 a year, including appointments. About one-third of the income is cash. Very little Midwifery. The work being almost entirely confined to the surgery the Practice can be run as a lock-up if desired. Premium £650.
8. CHARMING SUBURBAN DISTRICT, bracing and very picturesque. Good Middle-class PRACTICE, returning about £700 a year. Excellent family residence, with stabling, and over an acre of grounds, tennis lawn, &c., may be bought or rented. Premium £850. Vendor has held possession over twenty years, and will ensure an efficient introduction.
9. TO VENDORS.—From two to three years' purchase paid for a SHARE worth £500 a year in a Town on the S. Coast or in S. Devon. Or two years' purchase will be given for a PRACTICE with somewhat larger income. Advertiser is a married gentleman of about thirty and good experience.

TO PRINCIPALS.—Reliable LOCUM TENENS available at the shortest notice. Office fee, 10s. 6d. ASSISTANTS provided free.

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Telephone: 4791 (GERRARD).

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PARTNERSHIP.—An Unopposed Country Practice, situated in a first-class sporting neighbourhood within easy access of a large Town. Share for disposal is worth from £500 to £600 a year, with prospect of further share. Good house, garden, stabling, and paddock; rent moderate. Plenty of good society. Premium two years' purchase.

IMMEDIATE.—£1000 a year.—In small Country Town, an old-established Middle-class PRACTICE. Receipts include £150 from public appointments. Good fees. Fair-sized house, garden, stabling, and groom's cottage. Sport of all kinds can be had. Vendor having obtained appointment will accept £1000 or a near offer, part payable by instalments. Good introduction can be given.

MIDLANDS.—£500 a year.—In a Town of 5000 inhabitants, a Mixed-class PRACTICE, with transferable appointments, which are worth nearly £200 a year. One opponent. Twelve-roomed house; rent £35. Satisfactory reason for immediate sale. Premium £550.

BIRMINGHAM.—£450 a year.—In a growing Residential District, a Middle- and Working-class PRACTICE. Receipts include £50 from appointments. Surgery fees from 1s. 6d.; Visiting fees from 2s. 6d. Nice commodious house in good position; rent £45. Plenty of scope. Premium £500.

SUBURBAN PRACTICE.—£1500 a year.—In a rapidly spreading residential district, a good Middle-class PRACTICE, held by Vendor several years. Receipts include £300 from appointments. Good corner residence, with separate entrance to surgery, &c. Long introduction given. Premium one and half years' purchase.

UNOPPOSED COUNTRY PRACTICE in Eastern County, near a popular Seaside Resort. Receipts are about £300 per annum, including £55 from appointments. There is scope for material increase. Fair-sized house, good garden and stabling; rent £30. Premium £375. No opponents for four miles.

MIDLAND TOWN.—£850 a year.—Within one and a half hours of London, a Middle- and Working-class PRACTICE. Receipts include £200 from transferable appointments. Surgery fees from 1s. 6d., Visits from 2s. 6d. upwards. Good house, with separate entrance to surgery, &c., three sitting-rooms, five bedrooms, bathroom, usual offices, conservatory, and large garden; rent £50. Good introduction given. Premium £600.

TEN MILES FROM LONDON, a steadily increasing Middle- and Working-class PRACTICE. Receipts are just over £500 a year. There is undoubted scope for great increase. Opposition slight. Twelve-roomed house; rent under £40. No horse needed. Premium £600.

NEAR THE NORTH-WEST COAST.—An old-established PRACTICE in a small Country Town. Bracing and picturesque district. Receipts average £400 a year; an active practitioner could easily increase them. Good house, with three reception-rooms, seven bedrooms, usual offices, and good stabling; rent £50. Sport of all kinds can be had. Premium £450.

AN UNOPPOSED PRACTICE in an Agricultural District of S. Wales. Receipts average £500 a year and are increasing. Residence has waiting- and consulting-rooms, two sitting-rooms, five bedrooms, bathroom, good stabling, large garden, &c.; rent £35. No opposition for six miles. Plenty of sport of all kinds. Station in place. Premium £500.

LONDON, S.W. (NORTH SIDE).—£650 a year.—A steadily increasing Mixed-class PRACTICE situated in a neighbourhood where there is unlimited scope. Little Midwifery or night work. Ten-roomed house in leading thoroughfare. No carriage kept. Good introduction given and assistance afterwards if desired. Premium £650, part payable by instalments if secured.

LONDON, S.W. (SOUTH SIDE).—£850 a year.—An old-established, steadily increasing, ready-money PRACTICE, with small better-class connexion. Excellent corner residence, containing consulting- and waiting-rooms, good dining- and drawing-rooms, six bedrooms, bath, &c.; large garden; rent £65. Premium £750.

LONDON, S.W. (SOUTH SIDE).—£500 a year.—A well-established Middle-class PRACTICE, showing a steady increase the last three years. Receipts include about £140 from appointments, not clubs. Visiting fees from 2s. 6d. to 5s. Very little Midwifery or night work. Good residence in main thoroughfare. Rent £60. Premium £500. Suit anyone wanting an easily worked Practice.

Apply, PEACOCK & HADLEY, 19, Craven-street, Strand, W.C.

Bedford & Co., Auctioneers and Surveyors, 10, Wigmore-street, Cavendish-square, W. (established 1860), make a special feature of Letting and Selling Houses and Consulting-rooms in the Cavendish-square, Grosvenor-square, Portman-square, and leading medical districts. Lists on application. Properties registered free of charge. Telephone: 2412 Paddington.

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A. Outskirts of West Riding Town. Sound established and better Working-class PRACTICE. Returns between £800 and £900, including appointments £200. Rent £42. Premium £800.

B. Yorks.—Old-established (71 years) PRACTICE in pleasant residential locality. Patients chiefly local gentry and farmers. Receipts about £900. Unopposed, nearest opposition four miles. Excellent house, with garden and motor house. Premium £1500. House can be purchased at three-quarters cost. Lease.

C. Old-established Practice in Country Village on outskirts of populous Town, West Riding Yorks. Average cash receipts £650. Reasonable premium.

D. North of England.—Middle-class PRACTICE, growing Town. Receipts about £800. Suitable house; moderate rental, including Branch Surgery, with lease. Premium £750.

E. Genuine Practice in populous and industrial part of Leeds. Average cash receipts over £800, including clubs £40. Suitable house; rent £40. Working expenses low. Practice can be worked by foot and tramcar. Premium £750. Half down and balance at end of twelve months.

F. North Yorks, in clean town with large population, well-established PRACTICE, capable of increase. Average cash receipts £500, including appointments £100, probably transferable. Good house, Vendor's own property, will be sold or let at reasonable rental. Good educational facilities.

G. South of London, healthy part. Good house, with garden, electric light, &c. Average receipts last three years £500. Further particulars and premium on application.

H. Midlands.—Small Practice for Sale, at present conducted as a Branch. Premium £200.

I. Nucleus in West Coast Health Resort. Returns about £200 per annum. Rent £36.

J. Nucleus in Lancashire Town. Receipts about £150. Premium, including drugs, fittings, &c., £100.

K. North of England, West Coast.—Good Country PRACTICE, returning nearly £500. Good residence; moderate rental. Premium £400; half down and balance in one year. This Practice may be considerably increased.

L. Country Town, Lancs.—Excellent old-established and unopposed PRACTICE doing between £500 and £600 per annum. No clubs. Growing population. Commodious house, with all conveniences, newly decorated. Scope for increase. Reasonable premium.

M. Nucleus in Manufacturing Town, Lancs; population 40,000. Established nearly two years; cash receipts during this period £400. Specially good house; rent £35. Premium £150.

N. Nottingham.—Practice in good locality. Cash receipts about £250. Rent £19. Premium one year's purchase.

O. Several Practices in or near London. Full particulars on application.

In-door Assistant wanted (abstainer), age twenty-five to thirty, near Manufacturing Town in West Riding. Salary £120.

Wanted. well-established Practice in Country Town or suburb of city, North of England or Midlands, with good educational facilities. Cash takings £800 to £1000. House with garden preferred.

Gentlemen wishing to Purchase PRACTICES may enter their Names on our REGISTER free of charge.

THE SCHOLASTIC, CLERICAL, & MEDICAL ASSOCIATION,

LIMITED. ESTABLISHED 1880.

22, CRAVEN STREET, STRAND, W.C.

Telegraphic Address—"Triform, London." Telephone No. 1854 (Gerrard).

A Pamphlet relating to the MEDICAL DEPARTMENT, with the names of the DIRECTORS and the MEDICAL ADVISING BOARD, and terms will be sent on application to—Mr. G. B. STOCKER, MANAGING DIRECTOR, 22, CRAVEN-STREET, STRAND, W.C.

The Association undertakes the SALE of PRACTICES and PARTNERSHIPS; the Introduction of LOCUM TENENS and ASSISTANTS; INTRODUCTION of RESIDENT PATIENTS; MEDICAL ACCOUNTANCY (by a duly qualified Medical Accountant); INVESTIGATION and VALUATION of PRACTICES, &c.; POSTING BOOKS and sending out Bills; INSURANCE OF ALL KINDS, &c., &c.

FOR SALE.

(1) **PARTNERSHIP** (WITH TWO OTHERS) in a very old-established Practice of £1500 to £1600 per annum in a favourite Home County. Very good house with large and productive garden available, which would be let or sold. Premium for One-Third Share £750. Age thirty to forty preferred.

(2) **PARTNERSHIP** in an old-established unopposed Practice in a small Country Town in the Home Counties. Cash receipts average over £1600, including appointments worth nearly £300. Premium for Two-fifths Share £1300, with option of purchasing up to One-half later on. Very good golf links.

(3) **HOME COUNTIES.**—Old-established PRACTICE in an attractive Country District within a few miles of the county town. Receipts for 1907 over £1060 (average over £1000). Opposition very slight. Good house, with stabling and garden; rent £75, or would be sold. Premium £1500. Scope for increase.

(4) **PARTNERSHIP** in an old-established Practice in a Country Town in the Home Counties about two hours by rail from London. Cash receipts for 1907 over £2100, including appointments of about £150. Hunting, shooting, and golf. Premium for Half Share £2000.

(5) **SOUTH MIDLANDS.**—Very pretty Village within easy reach of County Town. Old-established PRACTICE of about £600, including appointments of over £200. Commodious house, with good garden and stabling; rent £70. Good society. Fishing, shooting, and hunting. Premium £900. Receipts have been taken out by accountant to Association.

(6) **SOUTH-WESTERN COUNTY.**—Small Country Town, situated on an Inlet of the Sea. Receipts for 1908 about £400, including appointments worth about £120. Pretty detached house, with stabling and garden; rent £40. Sport of all kinds. Premium one and a half year's purchase.

(7) **EAST MIDLANDS.**—Small Country Town within easy reach of two good Towns. Cash receipts average over £420 per annum, including appointments worth about £20 per annum. Good house, with stabling and large garden; rent £35. Premium £600.

(8) **EASTERN COUNTIES.** — Cathedral City. — Good-class PRACTICE. Receipts for 1908, 1907, and 1908 at rate of £690 per annum. No appointments. No carriage. Well-situated house; rent £45. Good social and educational advantages. Premium £1050.

(9) **MIDLANDS.**—Old-established PRACTICE in a Colliery Village. Receipts for 1908 about £500, including appointments worth about £120. No horse. Rent £35, Premium £600. Scope for increase.

(10) **KENSINGTON.**—Very old-established good-class non-dispensing PRACTICE. Cash receipts average over £670. No Midwifery. Good house; rent £145. Premium one year's purchase. The Practice is capable of considerable increase.

(11) **PARTNERSHIP** in a rapidly increasing mixed Practice of about £2300 (receipts for the last twelve months) in a growing neighbourhood in the Home Counties under ten miles from London. A One-third Share would be sold for two years' purchase, with op ion of purchasing subsequently to Five-twelfths and then to One-half.

(12) **JUNIOR PARTNER** (single preferred, a good surgeon and accustomed to good-class Practice) required for an increasing Practice of £1250 per annum in a large inland watering-place. Light work. Good fees. Social attractions. A One-fourth or One-third Share would be sold for two years' purchase, with option of further purchase up to One-half later on.

(13) **PARTNERSHIP** (Half Share) in an old-established Practice in a Town in a Colliery District in the North Midlands. Cash receipts for twelve months ending August 31st, 1908, £1022, including appointments of about £400. Rent of house £40. Sport of all kinds. Premium one and a half years' purchase.

(14) **GROWING RESIDENTIAL SUBURB OF MANCHESTER.**—Established by Vendor over thirty years ago. Good-class PRACTICE. Receipts average over £960. No carriage. Detached house with stabling and garden. Price for leasehold £1300, half of which might remain on mortgage. Twelve months' introduction or longer. Premium for goodwill £1400.

(15) **DEATH VACANCY.**—FIRST-RATE OUTLYING RESIDENTIAL SUBURB (WEST OF LONDON).—Old-established good-class PRACTICE. Cash receipts average over £500 per annum. House well situated in main thoroughfare. Great scope for increase.

FOR SALE (*continued*).

(16) **OUTLYING SUBURB** (KENT).—Rapidly increasing Middle- and Working-class PRACTICE. Cash receipts for twelve months to Nov. 30th, 1908, over £630 (previous twelve months £530). No carriage. Semi-detached corner house with garden; rent £50; or would be sold. Premium £650.

(17) **MIDDLESEX.**—Within ten miles of London.—Mixed PRACTICE. Rapidly increasing. Cash receipts for twelve months to Oct., 1908, over £500. Golf links. Premium £560. Scope for increase.

(18) **LARGE AND FAVOURITE WATERING PLACE** within easy distance of London. Good-class non-dispensing PRACTICE of £650 per annum. Good house; rent £110. Premium £1100.

(19) **IMMEDIATE.**—Excellent Investment.—North of England.—Leading PRACTICE in a large Manufacturing Town, established by Vendor over twenty-five years ago. Cash receipts for 1907 over £2000. Semi-detached house situated in the best residential part of the town; rent £100. Owing to illness no personal introduction can be given. Premium only £1500, part of which could be paid by instalments, or smaller premium if paid in cash. Good general hospital in the town.

(20) **MEDITERRANEAN.**—PARTNERSHIP, with view to Succession, to a good-class non-dispensing Season Practice (November to May). Receipts average £560. No Midwifery. Rent £80. Good introduction can be given. Premium one and a half years' purchase.

(21) **SURREY.**—Very attractive Residential and growing neighbourhood. Good-class non-dispensing PRACTICE. Receipts average over £380. Six months' introduction. Premium two years' purchase. Excellent scope for increase.

(22) **PARTNERSHIP** in an old-established unopposed Country Practice within one hour by rail from London. The Vendor has held the Practice for over thirty years, and is taking a Partner so that he may take things more easily. Receipts average about £745 per annum, including appointments worth about £200. Premium two years' purchase for a Half Share.

(23) **PARTNERSHIP** with view to Succession to a Middle- and Working-class Practice in one of the smaller manufacturing towns in Lancashire. Cash receipts for twelve months ending June 30th, 1908, £780, including appointments worth over £90. Premium for Half Share one and a half years' purchase. Scope for increase.

(24) **PARTNERSHIP** in an old-established unopposed Practice of about £1400 per annum in a good sporting district in the North-West Midlands. Very good house, with stabling and garden, and paddock; rent £55. Premium for Two-fifths Share two years' purchase.

(25) **PARTNERSHIP** in an old-established increasing Practice close to a pleasant Seaport and Winter Resort in the South-West of England. Receipts over £1030. Price for Half Share £1000. Good large house and garden and stabling; rent only £36. Yachting all the year round; golf and tennis.

(26) **ESSEX.**—Residential Suburb.—Very old-established Middle-class PRACTICE. Cash receipts average £1000 per annum, including good appointments of about £140. Well-situated house with stabling and very good garden; rent £75. Introduction up to twelve months. Premium one and a quarter years' purchase.

(27) **LARGE MANUFACTURING TOWN AND EDUCATIONAL CENTRE IN YORKSHIRE.**—Increasing Working-class PRACTICE. Cash receipts for 1907 £840 (previous twelve months over £620). Rent of private house £35. Premium £700, to include book-debts, drugs, &c.

(28) **NORTH-EAST OF ENGLAND.**—Large Manufacturing Town.—Old-established Middle- and Working-class PRACTICE. Cash receipts average over £880 per annum, including appointments worth over £100 per annum. No carriage. Semi-detached house; rent £45. Great scope for increase. Premium one year's purchase.

(29) **EASTERN COUNTIES.**—Immediate.—Old-established unopposed Country PRACTICE. Income over £400, including appointments of about £180. Good hunting and shooting. Small house. Scope for increase.

(37) **LONDON, S.W.**—Dispensary PRACTICE. Established twenty-two years ago by vendor. Cash receipts for year ending Oct. 31st, 1908, over £400. Rent £40. Premium £350, to include drugs, surgery fittings, and furniture.

COLONIAL PRACTICES FOR TRANSFER.

(38) **NEW ZEALAND** (NORTH ISLAND).—Rapidly growing Town near the Coast. Non-dispensing PRACTICE of over £800, including transferable appointments worth over £300. A horse is not necessary. Well-situated modern house, with flower- and kitchen-garden and paddock; rent £75. Premium £750. Scope for increase. Fishing, shooting, and golf.

(39) **CAPE COLONY.**—Small Town. Receipts average over £780. Small house, with large garden and field; rent £5 15s. a month. Excellent climate. Railway station. Premium £450, part of which could be paid by instalments.

(40) **UNITED STATES.**—Small Town. Population 8000. In vendor's hands eighteen years. Receipts average over £1370. Well-situated house; rent £84. Good society. Fine climate. Educational advantages. Premium, with three to six months' introduction, £1000, or the vendor will give twelve months' partnership introduction and sell for what the Practice books during this period.

(41) **NEW ZEALAND.**—PARTNERSHIP in a small Town. Receipts of Practice over £2100. Commodious house, with stabling and garden. Famous fishing and other sport. Premium for Half Share £1100.

(42) **CAPE COLONY.** — Unopposed PRACTICE of between £750 and £800 per annum in an Up-country District. Splendid climate. Expenses of living moderate. Premium £250.

(43) **NEW ZEALAND.**—Unopposed PRACTICE of £900 per annum (non-dispensing). Rent of house, with stabling and garden, £65. Shooting, fishing, hunting, &c. Premium £1000.

MEDICAL TRANSFER AGENCY. ESTAB. 1875.

MR. PERCIVAL TURNER (OLD EPSOMIAN)

(Son of a well-known Practitioner and Author of Guide to Medical and Dental Professions),

4, ADAM STREET, ADELPHI, LONDON, W.C.

Telegraphic Address, "EPSOMIAN, LONDON." Telephone, 3399 CENTRAL.

Transfer of Practices and Partnerships effected. Assistants and Locum Tenens provided. No fee to Principals. Investigation and Valuation of Practices, Accountancy, Bookkeeping, Arbitrations, &c. Insurances on Specially Reduced Terms to Medical Men only.

PRACTICES WANTED.

Mr. Percival Turner has at present several hundred clients wishing to Purchase genuine PRACTICES and PARTNERSHIPS, and will be pleased to hear in strict confidence from vendors wishing to make a change.

The following are a few selections from his Register of applicants:—

Wanted, a Practice in a Town of 50,000 or more, with scope for surgery if possible. Applicant is M.B., F.R.C.S., &c., and can purchase at once.—Details to 4311, care of Mr. Percival Turner.

Wanted, an Assistancy and view to early Partnership by experienced married Practitioner with means. Any good country district will suit with an income of £500 or more.—Details to 4303.

Wanted, a Working-class Practice in London of £500 a year or more by a married Practitioner ready to invest £600 or more in suitable Practice.—Details to 4302.

Wanted, a Partnership in a mixed Practice in or near London by doubly qualified married man with £1000 to invest. Income from £400 upwards.—Details to No. 4301.

Wanted, Sea Coast Practice of about £300 a year anywhere except the Northern Counties.—Details to 4292.

Wanted, Practice or Partnership, Country or Country Town in South or South-West County, with an income of £500 or more. Moderate-sized house. Applicant is M.R.C.S., L.R.C.P., age thirty-two.—Details to 4291.

Wanted, in E.C. district, within a mile of "The Angel," a Mixed PRACTICE of £250 to £500 a year. Can buy at once.—Details to 4283.

Wanted, by M.B., F.R.C.S. Eng., &c., a PARTNERSHIP, with scope for surgery, in a Hospital Town. Income about £800 a year.—Details to 4282.

Wanted, a Country or Seaside Practice of about £400 a year, by experienced man with private means ready to buy at once.—Details to 4271.

Wanted, by M.B., C.M., a Practice or PARTNERSHIP in a Country Town or Country in West or North-West returning £500 a year or more. Can invest £1000. Applicant is thirty-seven, married.—Details to 4261.

Wanted, in Hants or Surrey, a Practice of £500 to £800 a year, middle and better-class preferred, in Country or a small Town. Applicant is M.B., B.C. Cantab., &c., late H.P. and H.S., and can invest £1000.—Details to 4252.

Wanted, in North-West London, a Middle-class PRACTICE of £600 to £700 a year by experienced married man of forty.—Details to 4251.

Wanted, in Oxfordshire, Berks, War- wick, Wilts, Somerset, &c., a Country PRACTICE of £500 to £700 a year, by experienced married man ready to buy at once.—Details to 4242.

Wanted, an unopposed Practice of £400 to £600 a year by experienced married man desirous of settling at once.—Details to 4233.

Wanted, in a Country Town of 4000 to 15,000 inhabitants and a Cottage Hospital, a good General PRACTICE of £1000 a year or more. Applicant is experienced in all classes of work, married, and has ample means, and is prepared to pay full value for anything suitable.—Details to 4232.

Wanted, good-class Practice or Partner- SHIP of about £700 a year in a Country Town with scope for surgery.—Details to 4222.

Wanted, a Partnership in a mixed- class Country Practice with an income of £350 to £450 a year. Applicant is experienced and married and has done usual Hospital appointments.—Details to 4223.

Wanted, by F.R.C.S., with £2000 to invest, a PARTNERSHIP or PRACTICE from £500 upwards in a Country Town, with scope for surgery. Applicant is trebly qualified, married, &c.—Details to 4202.

Wanted, by M.B., B C. Cantab., a PRACTICE or PARTNERSHIP in a Village or small Town. Any income from £400 a year or more, if with scope, will suit.—Details to 4193.

Wanted, a Practice in a good Sporting Locality, with some society, by experienced M.B., with ample capital, ready to buy at once any suitable Practice of £800 a year or more. Small house will suffice.—Details to 4192.

Wanted, by M.D., M.B., &c., married, a PARTNERSHIP in a Provincial Town which will return an income of £500 a year or more. Applicant is married and can invest £1000 and settle at once.—Details to 4182.

Wanted, in South of England, a Prac- TICE or PARTNERSHIP of £800 to £1000 a year. Applicant is forty-three, married, and has ample means.—Details to 4151.

Wanted, by F.R.C.S. Eng., a Partner- SHIP in London or Suburbs, with scope for surgery. Income £500 or more. Capital to £1000.—Details to 4143.

Wanted in Exeter, Torquay, Sidmouth, Teignmouth, Paignton, or similar Town, a PRACTICE of £500 a year or thereabouts by an experienced Graduate with ample means.—Details to 4111.

Wanted, by M.D., &c., Practice in Country Town, returning £800 a year or more, or a PARTNERSHIP of £500. Good house and garden required and school for boys. Capital ready. Applicant is married and experienced.—Details to 4071.

Wanted, Country or small Town PRACTICE in S. or S.W. of England, returning £500–£700 a year. Moderate-sized house and garden. Applicant is M.R.C.S., L.R.C.P.L. (Guy's), and can invest up to £1500 a year.—Details to 404.3.

Wanted, by applicant with £4000 to to invest, a good-class PARTNERSHIP in a residential locality, not London. A large income not so essential as a chance of increase in a Practice where experience and ability would be of some service. Applicant is married and experienced in all classes of work.—Details to 4021.

Wanted, near London, N.W. district preferred, a PRACTICE of over £800 a year by experienced married doubly qualified man (St. Geo.), ready to buy at once.—Details to 4003.

Wanted, a London Partnership by experienced married man. Good-class preferred, and income of £800 to £1000 a year. Capital ready up to £2000 or more. (No. 258.2.)

Partnership wanted, within easy reach of London, by M.R.C.S., L.R.C.P.L. (Guy's). Can invest up to £2000 for suitable Partnership.—Details to No. 202.1.

Wanted, by M.B., B.C. Cantab., a Country Town PRACTICE or PARTNERSHIP of £500 a year or more. Capital £1000. Within 100 miles of London preferred.—Details to 239.3.

Wanted, by M.B., B.S. Lond., a Prac- TICE or PARTNERSHIP of £700 a year or more in a Country Town with small Hospital.—Details to 78.2.

Wanted, by M.D. Lond. and a friend, a good General PRACTICE in Country or Provincial Town. Income over £1200 a year. Ready to negotiate at once. Ample capital at command. (No. 106.2.)

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£1000 a year.—Eastern County.—Good old-established Family PRACTICE in a prosperous Town. Appointments over £200 a year. One horse sufficient. Good house, with small garden. Agricultural and residential district, with excellent educational facilities and sport of all kinds. Premium only £1000 if purchased at once. (No. 4222.)

West County.—Nearly £600 a year.—Very old-established good General PRACTICE in a residential and Agricultural Town or main line of rail. Easily worked. No appointments taken. Fees 2s. 6d. to 10s. 6d. Large house and garden. All kinds of sport. Premium £650 to a prompt buyer. Personally investigated. (No. 4223.)

£1700 a year.—Partnership.—Middle-class PRACTICE in a large business and residential town within forty miles of London. Visits 2s. 6d. to 5s., surgery from 1s. One Third Share for sale for £1100. Personally known and recommended. Books verified by chartered accountant. (No. 4205.)

Home County, £450 a year.—Country PRACTICE on line of rail in small Town. Easily worked. Scope for increase. Good house and large garden, tennis lawn, &c.; rent £35. Residential and Agricultural district. Hunting, shooting, &c. Premium £600. (No. 4221.)

Partnership.—Over £1200 a year.—Northern City. JUNIOR PARTNER wanted in good middle-class Practice, to increase Practice which is capable of great development. Visits 2s. 6d. to 5s. One-third Share for sale to begin. Personally known to Mr. Turner for twenty years, and recommended as exceptionally safe investment. (No. 4207.)

£750 a year.—Lancashire Town. Easily worked General PRACTICE. Small house; rent £33. Expenses small. Premium one year's purchase. (No. 4216).

£600 a year (nearly).—Good-class Residential Southern Suburb. Fees 2s. 6d. to 10s. 6d. Appointment £140. Good detached house with garden, &c.; rent £80. Partnership introduction. Premium £1000. (No. 4218.)

Seaside Practice.—Urgent.—£900 a year.—Old-established Practice, same hands nearly thirty years. Rapidly developing resort on East Coast. Fees from 2s. 6d. One horse. Very little night-work. Hunting, fishing, golf, &c. Good house. Premium one year's purchase with efficient introduction. (No. 4217.)

Nearly £2000 a year.—Old-established good Middle-class PRACTICE in suburb of a large Northern City. Same hands twenty years. Visits 2s. 6d. to 10s. 6d. Surgery from 2s. One horse. Good house; no garden; rent £80. Partnership introduction. Premium £2000. Would suit two friends. Personally visited and investigated. (No. 4213.)

London.—£600 a year.—Easy terms. A very old-established PRACTICE within half a mile of City is for sale solely through illness. Clubs £200. Can be much increased. Visits 2s. 6d. to 5s.; surgery from 1s. 6d. Very favourable terms to a prompt purchaser. (No. 4122.)

£1400 a year.—Suburban Partnership.—HALF SHARE for Sale in General Practice in residential Southern Suburb. Visits 2s. 6d. to 5s. Choice of houses. Premium £1250. (No. 4204.)

Unopposed (near Sea) old-established easily worked PRACTICE of £300 a year a few miles from a Seaside Resort on East Coast. Appointments £55. Good house and garden; rent £30. Premium only £375. Personally known. (No. 4182.)

London, S.W. — Residential suburb. £400 to £450 a year. Old-established PRACTICE, very easily worked, in good residential road. Visits 3s. 6d. to 7s. Lowest fee 2s. 6d. in surgery. Hardly any night work. Good appointment £55. Good family house and large garden; rent £65. Premium, with Partnership introduction, £500. Personally investigated and recommended. (No. 4196.)

Home County.—£500 a year.—General PRACTICE in a good Town within an hour of London. No horse. Good house and garden; rent £65. Premium £500. (No. 4178.)

On the Thames.—£330 a year.—Good increasing PRACTICE in favourite residential suburb. Fees 2s. 6d. to 7s. 6d. No horse. Very good detached family house; rent £70. Personally known to Mr. Turner. (No. 4169.)

£650 a year.—London Suburbs.—A PRACTICE of over 70 years' standing, 20 years in present hands, is for disposal owing to retirement of owner. Easily worked; no horse. Visits 2s. 6d. to 5s.; very little night work. Good house in excellent residential position, with garden; rent £70. Partnership introduction. Premium one and a half years' purchase. (No. 3978.) Personally known and recommended.

£1500 a year.—Residential Suburb in N.W. of London.—PRACTICE of thirty years' standing in rapidly growing good-class locality. Fees 2s. 6d. to 21s. Appointments £300. One horse sufficient. Premium one and a half years' purchase. Partnership introduction one year. (No. 4187.)

£800 a year.—Suburban Partnership AND SUCCESSION.—Partner wanted in good-class old-established Practice in residential S.W. Suburb. Fees from 2s. 6d. upwards. No dispensing. No appointments taken. Easily worked. No horse necessary. Half Share for sale, one and a half years' purchase. Personally known and recommended. (No. 4011.)

Over £700 a year.—Cathedral City. Easily worked; no horse or Assistant. No appointments taken. Good house in excellent position. Plenty of sport, golf, &c. Premium £1050. (No. 4137.)

Unopposed Practice of £500 a year in South Wales. Excellent fishing (salmon, trout, &c.), hunting, and other sport. No opponent for six miles. Good house and garden. Premium £525. (No. 4125.)

Over £800 a year.—Easy Terms.—Yorkshire Hospital Town.—Good General PRACTICE. Visits from 2s. 6d. No horse required. Good house; rent £50. Introduction as desired. Every investigation. Premium £750. (No. 4136.)

£500 a year income for £500.—Old-established Cash PRACTICE in North London, worked for several years by an Assistant and formerly returning £300 a year. Fees from 1s. Rent £45. Every investigation. Mr. Turner has known practice many years. (No. 4200).

South-West County.—Over £900 a year.—Very old-established PRACTICE in good residential Town, within easy reach of sea. Good fees. Appointments over £250. Good house and garden. Hunting, shooting, boating, &c. Premium £1400. Personally known and recommended. (No. 4117.)

£800 a year.—Partner wanted in old-established unopposed Country Practice in S.W. County. 3000 population in district. Appointments £200 a year. Good hunting, shooting, and fishing. Half Share for sale; two years' purchase. Personally known and recommended. (No. 4191.)

Lake District.— £550 a year.— Increasing General PRACTICE in a small Town on line of rail. Opposition less than usual, and very good prospects. Visits 2s. 6d. to 21s. Small house. No horse required. Illness cause of sale. Premium £650. (No. 4192.)

Partnership. — London Suburbs. — Good-class Partnership in residential S.E. Suburb. £1200 a year. Fourteen years in same hands. Appointments £73. Not much Midwifery; fees 1 to 5 guineas, chiefly 3 guineas; visits 2s. 6d. to 5s. Half Share for disposal. (No. 4145.)

£600 a year.—Suburban good-class PRACTICE in a residential suburb North of London. Easily worked; no appointments. Very little Midwifery; lowest fee 63s. No low fees. Very good old detached house, with an acre of garden. Every investigation. Illness cause of sale. Premium £600 to prompt purchaser. (No. 4174.)

Several other Good Practices and PARTNERSHIPS for disposal in London and Country. Full details on application, stating requirements.

LIST of PARTNERSHIPS & PRACTICES post free on application.

MEDICAL PARTNERSHIP AND CONVEYANCING AGENCY.

1, ADAM-STREET, ADELPHI, W.C.

The SALE of PRACTICES and PARTNERSHIPS NEGOTIATED. Trustworthy LOCUM TENENS and ASSISTANTS can be had at a few hours' notice. N.B.—No charge made to Purchasers.

Notice.—Mr. J. C. Needes, with an experience of over a quarter of a century, is in an exceptional position to give intending purchasers independent information concerning most PRACTICES and PARTNERSHIPS. Those investments in the following List marked with an asterisk are well known to him, having been purchased through his Office by the present Incumbents years ago, and in many other cases an introduction can be given to gentlemen who have taken charge of the Practices during the absence of the Incumbents.

SOUTH-WEST OF ENGLAND.—In a picturesque District on the Coast, a very old-established Country PRACTICE (held nearly twenty years by the present incumbent) is for Disposal. Nearest opponent five to six miles distant. Cash receipts average £630 per annum, including over £100 from union, vaccination, &c. Visits 2s. 6d. to 10s. 6d.; thirty to forty Midwifery cases yearly. Large house, containing four reception-rooms, twelve bedrooms, bathroom, &c., with garden attached. Rough shooting, fishing, golf, &c. Climate temperate and bracing.

RESIDENTIAL SUBURB (six miles west of Charing Cross).—Cash receipts for 1906, 7, and 8 average £450 per annum. Visits 3s. 6d. and 5s. Little Midwifery, fees 1 to 6 guineas. Very good house with garden attached; rent £65 a year. Vendor will give a good social and professional introduction and there is scope for increase. Premium £600.

YORKSHIRE.—In a Town of nearly 100,000 inhabitants, an old-established PRACTICE worth £800 to £900 per annum, including appointments (not clubs) over £200. Visiting fees 3s. 6d. upwards. Twenty to thirty cases of Midwifery yearly. Horse not required. Drug bill about £35 per annum. The house was specially built for a medical residence; rent £42. Premium £800.

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Fig. 1. Showing cap secured by fixing-band

Fig. 2. Showing fixing-band partly removed

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Fig. 3. Showing cork-lined lid raised

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